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Gleanings in Bee Culture

VOL. XXXVIII

MARCH 1, 1910

NO. 5



HUBER, THE NATURALIST, STUDYING THE LEAF HIVE.



PUBLISHED BY

THE A. I. ROOT COMPANY, MEDINA, OHIO, U. S. A.

MAKE A LIVING WITH BEES. . . .

Read
these..
Books

A Year's Work in an Out-
Apiary,
Alexander's Writings on
Practical Bee Culture

Are you getting the best possible results from your bees? What does the season's honey crop mean to you? There is money in bees whether you have a few colonies or several hundred. The bees will do their part every time if you do yours.

Two veteran bee-keepers, E. W. Alexander and G. M. Doolittle, have written of the methods by which they made their bees produce results which might seem incredible to the uninitiated. Mr. Alexander's bee-keeping was **extensive**, while Mr. Doolittle's is on a much smaller scale, but **intensive**. Mr. Alexander had as many as eight hundred colonies at a time, while Mr. Doolittle obtained the results he describes from about thirty colonies. Both are practical bee-keepers of wide experience.

In "A Year's Work in an Out-apiary" Mr. Doolittle explains every detail of the work required from the time the bees are taken from their winter quarters until the last drop of nectar is harvested in the fall. It is a detailed account of just what he did to make his bees produce an average of 114½ pounds of honey in a poor season.

Here are some of the Things Mr. Doolittle Talks about:

114½ lbs. of
Comb
Honey
per Colony

- CHAPTER 1. Putting the bees on summer stands.
" 2. An inspection of the brood-frames.
" 3. Bloom-time.
" 4. How to control swarms when running for comb honey.
" 5. A simple plan for making increase.
" 6. How to save unnecessary lifting taking off filled supers.
" 7. Taking off the surplus; what to do with unfinished sections.
" 8. Progress in the supers.
" 9. A simple way to put on escapes without lifting
10 and 11. Taking off honey and storing it in the out-yard.
12. Closing words and further suggestions.

Mr. Alexander was one of the largest, if not the largest, bee-keeper in the United States, and what he has told of his methods must necessarily be of interest to large bee-keepers. He kept bees for over forty years, and produced honey by the carload. His writings are practical, and what he has done others may do if they care to follow his teachings. Contents of the Alexander book:

PART 1.—Bee-keeping as a business. What constitutes a fairly good locality. Amount of honey per colony. Profits in bee-keeping. A few things not to do in bee-keeping. Styles of appliances to adopt.

PART 2.—Taking bees from the cellar in the spring. Spring dwindling. Alexander plan for building up weak colonies. Brood-rearing in the spring. Spring feeding. Making increase v. buying colonies. How to dispose of new swarms and control undesirable increase. Transferring bees.

PART 3.—Honey production. Extracting uncap-
ped honey. Producing comb honey. Comb v.
extracted honey.

PART 4.—Disposing of the honey crop. Organ-
izing for better prices.

PART 5.—Queens and queen-rearing. Nuclei for
rearing queens. Superseding our old queens.
The importance of having queens reared from
the best stock. Yellow vs. leather-colored
Italians. Rearing queens for early increase.
Plurality of queens in one hive.

PART 6.—Wintering.

PART 7.—Bee-diseases.

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EDITORIAL

By E. R. Root.

THE IMPORTANCE OF THE WINTER NEST.

ONE of our subscribers, Mr. R. C. Hugentobler, of Miami, Ohio, has this to say of the importance of a winter nest:

As I have supplied many colonies with sealed stores, and taken many observations, I find that what you say in regard to the winter nest is true. I have found that colonies supplied with sealed stores are invariably not clustered on them, but hang to the dry empty combs, and starve, sometimes, when in touch with the sealed stores. These observations prove conclusively to my mind the great importance of a winter nest in outdoor wintering.

PRICES ON HONEY NOT KEEPING PACE WITH OTHER FOOD PRODUCTS.

IN looking over the back volumes of GLEANINGS for 1877, we noticed how Adam Grimm reported that he was getting 25 and 30 cents a pound for his extracted honey; that he thought 25 cents was low enough. This makes rather interesting reading when we consider the present price of extracted honey, and that all other articles of food have advanced. The reader, in this issue, will be interested to follow the discussion of this question by Mr. O. L. Hershisser, on page 140.

DANGER FROM DEAD BEE-CLOSED ENTRANCES.

AT this time of the year, especially after a very severe winter such as we are now having, it will be very important to see that dead bees accumulating in the entrances of outdoor-wintered colonies be raked out. An entrance closed with dead bees, snow, and ice usually means death to a colony. There is great danger that hundreds of colonies in otherwise good condition may be lost through a lack of attention at this season of the year. If the outdoor-wintered bees have absorbing cushions the results will not be as fatal; and that, by the way, is one thing in favor of that kind of wintering.

WINTER LOSSES.

IT begins to look now as if there would be heavy losses of bees in some sections. The winter thus far has been one of the old-fashioned kind, with almost continuous cold without any flying days. This, for our locality, is something unusual. While our bees are wintering nicely because we fed a large amount of sugar syrup, we have been a little fearful that the large amount of

honey-dew, where no syrup was fed, together with the extremely cold weather, was going to have a bad effect upon other bees.

AMERICAN HONEY REFUSED ADMISSION IN SOUTH AFRICA.

THE following letter, received from the Bureau of Entomology, will explain itself:

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY,
Washington, D. C., Jan. 3.

Mr. E. R. Root:—It has come to the notice of this Bureau that certain shipments of honey from California, which were sent to England and there bottled and shipped to the Cape of Good Hope, have been refused admission to that colony under Proclamation No. 394 of 1908 of the Governor of the colony. This proclamation states that, since "the disease known as 'foul brood' exists or is supposed to exist among bees in Australia, New Zealand, the Continent of North America and the Continent of Europe, including the United Kingdom and Ireland," the importation of honey from these countries is prohibited "except under written permit previously obtained from the Secretary for Agriculture, under such restrictions and safeguards as may seem to him expedient or necessary."

This proclamation, therefore, prohibits the exporting of all American honeys to the Cape of Good Hope, whether or not either of the diseases of the brood exists in the apiary or apiaries from which the honey is obtained. Steps are now being taken to obtain permission from the Secretary for Agriculture to allow shipments of honey from healthy apiaries to be admitted to this colony when proper proof is presented that no disease exists. The form of permit or certificate must be determined by the officers of the colony. This proclamation puts a stop to the sale of considerable quantities of American honey which has formerly been sent to the Cape of Good Hope until some arrangement can be made with the Secretary of Agriculture. L. O. HOWARD, Chief of Bureau.

SOME OLD PATENTS BEARING ON SOME SCHEME FOR PREVENTING FOUNDATION STRETCHING.

IN our last issue, page 99, reference was made to the fact that an inventor had lately patented a scheme for using paper in the midrib of foundation to prevent its sagging while being drawn out by bees. Having occasion to go over our file of patents relating to apicultural inventions, we ran across a patent issued to J. Y. Detwiler, May 13 1879, covering the use of perforated tinfoil in the midrib to prevent stretching. On Aug. 13, 1878, M. Metcalf took out a patent for the use of cloth dipped in melted wax and run through foundation-rolls or flat dies.

It was about this same time that A. I. Root used quite extensively paper in the midrib of his foundation sheets; and while he did not patent the same he wrote it up in GLEANINGS. He found that the bees, during a dull season, would discover the paper in the combs, when they would immediately begin to tear it out. They seemed to think it

was the silken galleries of the mothworm, and they treated it accordingly. We had hives of Italians that just fairly riddled their combs after they had been nicely drawn out.

All these different schemes for fixing foundation so it will not stretch are quite alluring; and to one who has never worked them out, any one of them appears to be perfectly feasible; but "there is many a slip 'twixt the cup and the lip" in apiculture.

In this connection perhaps it would be interesting to note that Capt. J. E. Hetherington, the one-time largest bee-keeper in the world, patented the plan of using wires imbedded into foundation. Two patents were issued to him—one dated August 28, 1878, and July 14, 1879. The first patent covered the use of wires in any foundation, whether having natural base or flat base. The second was limited to the use of wires in flat-bottom foundation.

SOMETHING MORE ABOUT RYE MEAL AND BROOD-REARING.

AFTER the experiment of feeding rye meal under glass I made examination of our colonies outdoors and found quite a number without a particle of pollen, and, as a matter of course, *no brood*, although the queen laid eggs every day. As the weather was such the bees could not fly, I began experimenting with rye flour mixed with honey so as to form a sort of dough, and was delighted to find this food started brood at once, just as the rye did in the greenhouse. Whenever or wherever colonies are found destitute of pollen I feel sure it will pay to supply it in this way until they can get it from natural sources. As it sometimes gets so hard in the cells that even the bees seem unable to remove it, we should be careful to give them only about enough for present use. I think this matter is given at length in our early volumes; but I have no access to them here in my Florida home.—A. I. R.

CARBOLIC ACID WILL NOT KEEP BEES AWAY FROM POISONOUS SPRAYING-MIXTURES.

REFERRING again to the statement made p. 611, Oct. 1, by B. W. Harrington, in regard to carbolic acid being used in spraying-mixtures to repel the bees and prevent them from being poisoned, we have found that quite a little interest has been shown by our readers. Mr. J. L. Byer, page 778, Dec. 15, reported that it was his belief that this was all a mistake. Prof. Surface's opinion was used in our last issue, page 127. We are just in receipt of a letter from Prof. C. P. Gillette, State Entomologist for Colorado, which explains itself.

I have not heard of carbolic acid being used in spray materials to prevent bees from being poisoned. Unless some one has tested this plan and found it to work satisfactorily, I should be very much inclined to doubt its having any repulsive effect upon the bees. Entomologists have used various odorous substances for the purpose of preventing insects from attacking the plants, but almost wholly without results. It is the instinct of the honey-bee to visit the blossoms that contain pollen and honey, and I do not believe it would be practical to use enough carbolic acid in spray material to drive them away. It is a grave mistake for

any fruit grower to use an arsenical spray for the purpose of killing codling moth before the blossoms are practically all off his trees. I have talked this to the apple growers in Colorado for the past 19 years, and I do not think we have any trouble at the present time from orchardists spraying their trees while they are still in blossom. We did have some trouble, however, a few years ago along this line.

Fort Collins, Col.

C. P. GILLETTE.

YOUNG PEOPLE WHO HAVE PAID OR ARE PAYING THEIR WAY THROUGH SCHOOL FROM MONEY EARNED FROM KEEPING BEES.

MARY ROGERS MILLER, 340 Rahway Ave., Elizabeth, N. J., is writing a book for Doubleday, Page & Co., of New York, on outdoor work for young people. She has given considerable space to the subject of bee-keeping. One part of the book is to be devoted to stories of real boys and girls who have made all or a part of their college expenses, their pin money or pocket money by engaging in some form of outdoor occupation. Mrs. Miller is particularly anxious to get in touch with young bee-keepers who with the money they have earned have gone through school or college. We hope that any subscribers who know of any such persons, or who themselves, in fact, come under the class mentioned, will write to Mrs. Miller direct.

In the meantime we have been informed that a daughter of Mr. J. F. McIntyre, one of the extensive bee-keepers of California, paid her way entirely through college with the money that she made off from her own bees. There are doubtless many others among our fraternity who have done the same. All interested should write to Mrs. Miller at once.

KEEPING ALFALFA COMB HONEY FROM GRANULATING.

A YEAR or so ago, our readers will remember that we conducted some experiments in an incubator to determine whether we could bring candied comb honey back to a liquid condition without melting the comb. We partially succeeded; that is, we succeeded to the extent that the candied particles in the honey were liquefied, but the temperature necessary to do this caused the comb to sag a little. That temperature was 106°. Last winter we tried the experiment on a larger scale, but did not allow the mercury in the thermometer to go higher than 103°. While we could not at this temperature undo the work of granulation, we arrested its progress almost instantaneously. This room was about 6×6×7 feet high. It had a steam radiator in it and an automatic regulator to control the temperature.

Again, this winter we noticed that quite a little of our last two carloads of alfalfa comb honey were beginning to granulate slightly. Something had to be done at once. We selected a room of sufficient size to hold the honey, and put in additional steam radiation till the temperature could be brought up to about 90°. Here the honey was stored and it has been there for the last month. It was gratifying to observe that the progress of granulation was arrested at once.

From all the experiments we have conducted, we have concluded that it is not practical to liquefy the granulation in comb honey. We can arrest the progress, when it just starts, at a temperature of 90 degrees. If it has progressed a little further a higher temperature would be required to stop it. Those who have honey stored in large quantities, especially if it be alfalfa, should remember the very great importance of keeping it in hot rooms. We have visited many commission houses in the country, and too often the rooms where the honey is stored is down to a temperature of about 60. Ordinary farm produce can be kept better in a room like this, no doubt, but honey should be put into the warmest, hottest, driest place on the premises. The average commission man and honey-buyer can well afford to put in extra radiation in some special room where his honey is stored—enough radiation to hold the temperature approximately between 85 and 90 degrees *night and day*. It is important that this temperature be kept *uniform*. It will not do to have the thermometer show 90 degrees at one time and 60 at another. This is just the very thing that will hasten granulation.

In some of our early experiments we determined that alfalfa honey may be stored in a room that is kept at zero temperature for almost two weeks steady and yet no granules will show; but the minute it begins to warm up, changing from warm to cold, then the honey will begin to cloud and finally turn into a solid condition. Apparently, then, a very cold temperature or a very warm temperature is less favorable to granulation than any point between; but we would by no means advise any one to put his honey in a room subject to a zero temperature. Comb honey, of course, would be frozen, combs would crack and the goods would be ruined.

FORMATION OF THE OHIO BEE-KEEPERS' ASSOCIATION AND THE INTRODUCTION OF A STATE FOUL-BROOD BILL.

THAT the bee-keepers of Ohio have not been idle during the past few weeks will be shown by a report received from the secretary, Mr. Henry Reddert. We take pleasure in presenting it here at this time.

Feb. 3 and 4, 1910, the Ohio bee-keepers met at the Neil House, Columbus, Ohio, and organized the above-named association. The following officers, to serve for one year, or until their successors are chosen, were elected:

President, J. F. Moore, Tiffin; Vice-president, Henry Shaffer, Westwood; Secretary, Henry Reddert, Cincinnati; Treasurer, C. H. Weber, Cincinnati; Executive Board, E. R. Root, Medina; Henry Hastings, Kenton; Dr. P. E. Cromer, Springfield; D. H. Morris, Springfield; Pearl McIntire, Springfield; Edmund W. Peirce, Zanesville.

A bill was drafted having the general features of the one recommended by the Bureau of Entomology, at Washington, D. C., authorizing the State Board of Agriculture to establish a "Division of Apiary Inspection" in the Ohio Department of Agriculture. This bill provides that the Board shall appoint a competent entomologist as chief inspector of said division, with power to appoint the necessary assistants, who shall, under the direction of the board, have charge of apiary inspection. Mr. A. P. Sandles, Secretary of Agriculture, and several Representatives of the different counties of the State were seen, and the provisions of the bill explained.

All the members of the association present were very enthusiastic in the work before them, and expressed the hope that this bill will clear the bee-yards of foul brood and all other diseases common to the honey-bee. Mr. E. R. Root worked like a beaver. He acted as a spokesman, and introduced the association committee to the Secretary of Agriculture in the capitol building. In clear and concise language he explained to that gentleman the wishes and wants of the Ohio bee-keepers. He made so favorable an impression that the Secretary offered a column in the *State Agricultural Journal* to further the art of bee-keeping. In a few days the bill will be ready for introduction to the General Assembly. In the mean time every bee-keeper in the State should call the attention of his Representative to the bill when it comes up for discussion and passage, and ask him to support and vote for it.

The various bee-keepers attending this convention came to this meeting for the sole purpose of clearing the bee-yards of disease, and such efforts should in every way be crowned with success. The bill will appear in GLEANINGS in due time. Next year, probably in January, when the horticultural societies meet in Columbus, the Ohio bee-keepers will hold their next annual convention. In the mean time the officers of the association will communicate to each other every detail enhancing the growth of the State organization, getting all the bee-keepers they can to join.

Communications should be sent to Henry Reddert, Secretary, 2300 Schoedinger Ave., Lick Run, Cincinnati, Ohio.

Perhaps we should explain that the bill which the bee-keepers of Ohio are about to have introduced in the legislature does not call for any special appropriation. It was found that the present legislature would be very much disinclined to pass any bill carrying an appropriation of \$500 or \$1000. Prof. N. E. Shaw, State Entomologist, and Mr. Sandles, Secretary of the Department of Agriculture, very kindly offered to take care of the work of inspection out of the general appropriation granted to their Department, providing that, for the first year, we bee-keepers do not make too heavy a demand upon them. For the present, at least, if the bill is made into law, granting police authority to the State Entomologist, he could appoint one or more of his nursery inspectors to act also in the capacity of inspectors of apiaries. This could be done for the first year, or until more funds are available, to save expense. While the objection might be raised that nursery inspectors would not be competent to pass upon the diseases of bees, it will not take them long to become informed regarding the nature of the two principal bee diseases that are so destructive in the United States; and, besides, the members of the Ohio State Bee-keepers' Association have offered to render them every assistance, not only in informing them *where* disease exists in the State, but *how* to recognize it. For the first few trips it will doubtless be necessary for the inspectors to call in one or more competent bee-keepers in the locality to advise.

While the amount available for inspection work will probably not be large this year, *yet if we can once get this bill through*, granting police authority to the State Inspector (the State Entomologist), the Secretary of Agriculture a little later on can make provision for the necessary funds to carry on this important work properly. Both Prof. Shaw and Secretary Sandles seem very willing to help us.

STRAY STRAWS

BY DR. C. C. MILLER, MARENGO, ILL.

HOW SOON after a colony becomes hopelessly queenless may laying workers set up business? [This is something that varies according to the strain of bees and conditions. With Holy Land bees, laying workers will develop much more quickly than with Italians. Cyprians come next.—ED.]

FOOD-INSPECTOR DODGE, testifying before Congressional committee, gave prices of necessities of life in 1897 and now. Of 16 leading items, the advance has been from 33 to 145 per cent. The sum of their prices is now 76 per cent higher than it was. Can any one figure out that honey has advanced 76 per cent?

F. DUNDAS TODD, you wanted to feed a pollen substitute Jan. 1, and it sounds a little as if you thought bees died for want of pollen, page 122. I don't believe a bee died from that cause, and in winter not a grain of pollen is needed, nor until time for brood-rearing to begin, for no brood can be reared without pollen. Notice, the editor says *brood* died for want of pollen but not bees.

FOR ROBBER-TRAP escapes, p. 116, why not two cleats nailed on hive-wall, V-shaped, with wire cloth nailed on flat? Your presentation has converted me into a belief in robber-traps. [Possibly a bee-escape could be made in the manner you describe, especially if made double; but the wooden cleats would be more inclined, in our judgment, to direct the entrapped workers back to the point of apex through which they could get back by the way they came.—ED.]

DOBBRATZ says, *Wegweiser*, 9, that fertilization of a virgin may occur when she is even 6 weeks old, and only in the rarest cases will she become a drone-layer before that old. If she once starts drone-laying she will never be fertilized. If within this time drone brood is found, it is certain that laying workers are present, and will continue work until the queen begins laying. He and others have had laying workers thus begin with a queen-cell or a virgin present.

"QUEENS reared late . . . may not be the equal of those reared early in the season," p. 108. I'm afraid some beginner will understand that "early" to mean before there is any honey-flow. In this locality the normal time for queen-rearing begins with the white-clover flow unless sometimes in a heavy dandelion or fruit flow. A queen reared before this time is apt to be worthless, and I don't believe any amount of feeding will make her good. On the other hand I *think* feeding may make a good queen after the honey-flow is over. At any rate I would much rather have a too late queen than a too early one. [Thanks for correction. We meant by "early queens" those reared just about the approach of a honey-flow. We do not agree with you, however, that an early-

reared queen raised, say, in May, can not be as good as one reared in August. If one knows thoroughly the art of queen-rearing he can, by a process of making a colony combless and broodless, and feeding, produce results that are as good as those secured during the swarming season; and in this connection it is proper to state that not all swarm cells by any means are first class. Many of them are much inferior to those reared under artificial conditions. Nature does not always do better than science; but as a rule science can not often hope to excel her.—ED.]

SUPPOSE each of 100 colonies to have its queen removed and at once replaced by a virgin just hatched; how many of the 100 will swarm with the young queen? In other words, how many chances in a hundred are there that a colony thus treated will swarm? [Instead of asking the question we wish you had answered it yourself to the best of your knowledge. We infer from the way you *put* the question that you think the number of colonies that would swarm with a young queen would be small. Is our inference correct? In the mean time, perhaps you would like to know *our* views. We have nothing very definite to offer except that colonies with young queens are much less inclined to swarm than those with old ones. What the proportions would be we could not say. One of the most extensive bee-keepers in Ohio, Mr. Henry Hastings, of Kenton, told us that it was his practice at the beginning of the honey-flow to kill the old queen, and in eight or nine days destroy all the cells but one and allow the virgin issuing therefrom to become the mother of a colony. By so doing—and he is an extensive producer of comb honey—he controls swarming almost entirely.—ED.]

HOW MANY fielders are in a colony of 50,000 bees? If a queen has been laying the same number of eggs each day for many days, if the average life of a worker is 6 weeks, and if each bee spends 16 days as a nurse before becoming a fielder, then $\frac{1}{6}$, or 19,048 bees, will be nurses, and $\frac{2}{3}$, or 30,952 bees, will be fielders. Earlier, when the daily output of eggs is on the increase, the proportion of fielders will be smaller; later, when the output is on the decline, the proportion of fielders will be greater. I am not ready to swear to those figures, and if any one has a better answer I'll be glad to get it. Even if my figuring is correct for a strong colony, it will not be correct for a weak one; for enough bees must stay home to keep the babies warm, even if it makes them stay till they are much over 16 days old. [Your figures are doubtless fairly correct for average conditions; but we know that, under abnormal conditions, nurse-bees will assume the function of fielders, and old bees the function of nurse-bees. Assuming that your figures are fairly correct for average conditions, they go to show the importance of strong colonies in order that the proportion of fielders may be sufficiently large to get the honey that is in the field.—ED.]

NOTES FROM CANADA

By R. F. HOLTERMANN.

PROVINCIAL GOVERNMENT ESTIMATES.

The Supplementary Estimates for Ontario contain the following items of interest to bee-keepers: An increase of \$500 to provide for inspection of apiaries and traveling and other expenses in connection with apicultural work; \$1200 to provide for lecturer on apiculture at the Ontario Agricultural College, and \$750 to provide for equipment and maintenance of the Apicultural Department. I understand, however, that there may be some further provision.

Later.—The provincial apiarist's salary is now \$1500.



THE NORFOLK BEE-KEEPERS' ASSOCIATION.

This association was organized Jan. 13, 1882. It has had 97 meetings, and has been one of the most active local associations in Ontario. In progressive movements it has been well in the lead, particularly in late years. More than one plan which it has instigated have been brought to maturity. Its present officers are, Edwin Trinder, Pres., Simcoe, Ont.; John Murphy, Silver Hill, Ont., Vice-pres.; and Lee Beaupre, Forestville, Ont., Secretary and Treasurer. All of these are men who, when they undertake a work, do not readily turn from it. Messrs. Trinder and Murphy are well known in other activities. The Secretary, Mr. Beaupre, has been a hard worker in the interests of the association, and deserves the thanks of the bee-keepers in the section of the country which covers its activities.



BEE-KEEPING IN RUSSIA.

On page 23, *British Bee Journal*, there appears a very striking editorial on the above subject. It contains in part as follows: "It is said that in the government of Ekaterinoslav, in South Russia, there are nearly four hives to every inhabitant." If I mistake not, the district referred to is somewhat densely populated, and it would be highly interesting in this connection to have some information on this subject. In any case, in this country many would be inclined to think four colonies to every inhabitant would be overstocking with a vengeance. Again, "In Little Russia, before its union with Russia proper, there existed a tithe in bees, which consisted in carrying to the seignior a tenth part of all the honey produced in the hives. At the beginning of the eighteenth century a single forest domain of the government of Kiev paid the seignior annually as much as 200 barrels of honey, each barrel weighing 361 lbs." This means 72,200 lbs.



QUEEN-EXCLUDERS.

On page 26, Jan. 1, a writer discusses the question of using queen-excluders, doing it in a fashion all too common on this side of the ocean. D. M. Macdonald, Banff, who is

beginning to be known as an apicultural writer, has previously, in defense of the use of queen-excluders, quoted such men as Dr. Miller and Mr. Doolittle. Then he states, as regards "advanced" American bee-keepers, "let us look at just a few of their up-to-date methods." Then Dr. Miller is shown up as a man who does not paint hives, and, "incredible as it may appear, actually places a diseased comb for several days in the hives containing the turned-out (diseased) lots."

Then Doolittle has it thrown up to him that "He puts a couple of boards on the ground in the apiary, and piles thereon his reserve supers of honey, with no other protection than a hive-cover on top; and there they remain from October to the middle of June."

These practices would certainly, in my estimation, be very bad; but if it is all a correct statement, there has nothing then been said in favor of the abandonment of queen-excluders. As long as I can secure queen-excluders I do not care to do without them; in fact, I would almost as soon do without comb foundation in the brood-chamber.



AN ACT RESPECTING THE RIGHT OF PROPERTY IN SWARMS OF BEES.

The Hon. J. S. Duff, Minister of Agriculture for Ontario, has introduced an act in connection with the above which will, no doubt, become a law, as it is a government measure.

"Bees living in a state of freedom shall be the property of the person discovering them, whether he is or is not the proprietor of the land on which they have established themselves. Bees reared and kept in hives shall be private property. Where a swarm of bees leaves a hive, the owner may reclaim them so long as he can prove his right of property therein, and shall be entitled to take possession of them at any place on which the swarm settles, even if such place be on the land of another person; but the owner shall notify the proprietor of such land beforehand, and compensate him for all damages.

"If a swarm settles in a hive which is already occupied, the owner of such swarm shall lose all right of property therein.

"An unpursued swarm which lodges on any property, without settling thereon, may be secured by the first comer unless the proprietor of the land objects.

"If the owner of a swarm declines to follow the swarm, and another person undertakes the pursuit, such other person shall be substituted in the rights of the owner, and every swarm which is not followed shall become the property of the proprietor of the land on which it settles, without regard to the place from which it has come."

"FLOURING" BEES SHAKEN IN GRASS.

Instead of shaking bees on to the bottom of the hive I shake out in front of the hive several feet away. When ready to drop the queen among them, sprinkle flour on the bees. They will get into the hive in one-fourth the time it would take to smoke them in. It seems to demoralize them completely.

Colo, Iowa.

D. E. LHOMMEDIEU.

BEE-KEEPING AMONG THE ROCKIES.

BY WESLEY FOSTER, BOULDER, COL.

ANGLE OF CELLS BUILT FROM FOUNDATION.

Dr. Miller, the reason for the *side* of the cell being horizontal in comb built from surplus foundation and the *angle* of the cell pointing to the top in the brood foundation, p. 23, Jan. 1, is that the surplus foundation is cut across the width of the sheet while the brood foundation is placed in the frame lengthwise; so if you would attach what was the side of your foundation sheet to the top of the section the angles of the cells would point the same as they do in brood foundation and in most natural-built comb.

GLASS-FRONT CASES.

Mr. Crane, page 37, Jan. 15, thinks the un-glassed paper case will sell in competition with the glass-wood case. If the paper case would ship more safely than the wood case it might be true. I do not doubt that the paper case would outsell the single-tier wood case; but the double-tier case will ship much more safely than the single tier.

When the buyers will pay 10 to 15 cts. more for honey in double-tier glass front cases than for that in single-tier wood-slide cases, it is reasonable to suppose the bee-keepers will supply the better-priced article.

DEPTH OF SHIPPING CASES.

On page 455, Aug. 1, I had reference to the double tier case needing an eighth-inch space over the sections. More space than this would endanger the sections should the case be tipped on end or upside down. It would not do at all to make the single-tier case with a 1½-inch space over the sections as Mr. Crane suggests on page 758, Dec. 15. What would happen if such a case should go on its side or end, or clear over? and yet I do know that the covers sag as Mr. Crane says, when stepped upon, and that is the chief fault with the single-tier case. The double-tier-case cover will not sag more than a sixteenth of an inch, because the heel and sole of the shoe reach nearly across the cover.

THE SOLAR EXTRACTOR.

No method of melting and molding wax can excel the solar wax-extractor when properly handled. Refuse must be kept out of the molding pans, and this can be done by having the screen form an obstruction to the melted wax so the bits of foreign matter will settle or lodge. The screen makes all the better sieve if it is clogged with slumgum and cocoons.

The extractor should be opened in the morning early before flies are about. The practice of leaving a cake of wax in the extractor from day to day is a poor procedure. The cakes form in layers, and refuse is almost sure to be between the layers. Take

out each day's run the next morning before or about sunrise. It is better to have thin cakes than thick layer cakes with dirt sandwiched between.

CORRUGATED-PAPER SHIPPING-CASE.

Too much can not be expected of the strawboard case. Several cases of these came to Denver from a distance of several hundred miles. The shipper apparently thought they would stand any amount of rough handling by the express company, for no marks were put on to tell what the contents were. Three-fourths of the honey was broken out; and what was not broken was cracked badly. A wood case with glass front would go through much better, for the fragile character of the contents can be seen. The strawboard case will stand rougher treatment than the wood case, but it must not be dropped far in cold weather.

HONEY GRANULATING.

When honey in the comb begins to granulate, the granules form around the sides of the cell, leaving the center liquid. Perhaps this is not true in every case, for in some samples in which the honey was getting mushy, I have found all the honey in the cell of like consistency. Most of the honey here in the West, however, begins to granulate on the sides of the cells, and then spreads throughout the cell. Often quite a little time passes before the honey is candied solid. Some combs will remain a third candied for five or six weeks. Where the granules have formed only on the sides of the cells it is very difficult to tell whether the comb honey is candied or not without breaking the cappings. These combs, if held up so light will shine through, often look clear and bright, though not quite so clear, I imagine, as the article that is wholly liquid.

BAITS IN SUPERS.

The use of a bait in the super is to start work above before the brood-nest is so crowded that swarming soon results. Baits placed in the corners will not be worked in much more quickly than sections of full starters in the center of the super. In my opinion a colony that will work in any part of a super is strong enough in bees to do good work above if the flow is daily getting better. Bees will not fill four or five baits in the center of a super till there is a rather plentiful amount of stores below. In this country I know the control of swarming hangs around the few days after the lower hive is well filled before we get the bees fully convinced that supers are the next on the program and not swarming. This whole question of placing baits depends on what the aim is. With our bees baits are used to get super work started, not to insure uniform super work; that can be had by spreading the nearly finished combs to the outside when the bees are fully possessed with the super idea.

CONVERSATIONS WITH DOOLITTLE

AT BORODINO, NEW YORK.

IS AN EXTRACTOR NEEDED FOR 23 COLONIES?

"I have been in the business only two years, and have twenty-three colonies at the present time. Mr. Jones told me yesterday that I should have an extractor, as many hives would often have too much honey in them in the spring; consequently the queens would be cramped for room to deposit their eggs, and that in such a case I could use an extractor to advantage to give the desired room, and at the same time put a stop to any inclination to swarm. In all of his experience he said he had never had a swarm at any time when the queen had been supplied with plenty of empty comb in the brood-nest. He further said that, in this way, I could be sure of having very strong colonies when the honey harvest commenced in earnest; and in case of a short flow I could secure quite a crop of extracted honey, while if I depended on comb honey I would get lots of swarms, with very little or no salable honey in sections."

"Well, Mr. Smith, there is some truth in what he said, and some things which are not what a practical apiarist would advise. That you could secure some extracted honey in a season with only a few days of honey flow is true; and that you would not have any swarms where the queen was supplied with all of the empty combs she could use for laying purposes, is nearly correct, though there are a few who claim that they have more or less swarming, even under such circumstances. But when Jones recommends extracting the old honey in the combs which the bees stored the year before, most practical bee-keepers would tell you he was making a mistake. In most if not all localities such honey is needed for brood-rearing before nectar of any amount comes in from the early or spring blooming flowers, and to extract it for the fun of feeding it back again would not be considered a paying job, as most of us believe that brood-rearing will go on just as prosperously, if not more so, when there is plenty of honey in the hive, without taking out some of it and feeding it back. Labor is one of the great problems in apiculture; and extracting this old thick honey, and then thinning it and feeding it warm, a little at a time each day, makes the labor problem very much greater than it is otherwise."

"Then you would not advise me to buy an extractor to use in that way?"

"No, I would not. But no person having as many as 20 colonies can afford to go without an extractor. Have you not had some colonies that were adverse to going into sections? or others that had the swarming fever, so that a whole season passed without a proper surplus? When you find colonies which are reluctant about working in the sections, just take a hive filled with combs

to one of them; open the hive and take out one or two combs of brood, and replace with an empty comb or two, as the case may warrant; then place a queen excluder over the hive, and on this excluder put the hive you brought along, and, when spacing the combs in it put in those you took from the old hive, after shaking the bees off, so you are sure you do not get the queen. You will now see that work takes the place of loafing. When the bees have those combs filled with honey, which they will have in a week or so, the extractor comes in play by throwing out that honey; then, on the return of those emptied combs, the bees will work with renewed energy to fill them again. Again, some colonies seem bound to store the larger part of their honey in the brood combs, thus crowding the queen and causing swarming, or leaving too few bees for winter. Especially is this the case where the dark or leather-colored Italians are kept.

"An extractor and the treatment I have been telling you about are almost the only salvation, if I may be allowed that expression, the apiarist has with such bees. They are excellent for extracted honey; but on account of their propensity to crowd the brood-chamber with honey, and cap their honey so it has a watery or greasy appearance, they are better for extracted than comb honey."

"I am glad you touched on this subject, for I had several colonies last year of these dark Italian bees that filled their hives full of honey, but put very little in the sections; and what they did put there was so miserably capped that I had to take second price for it by the side of what was made by my blacks."

"If you have an extractor, with such colonies you can become master of the situation, and secure a good return in extracted honey, which, when the selling price of this is added to that from your section honey, will bring the total amount to where you will have a good showing from each colony."

"But how can I dispose of so much?"

"You would have no trouble at all with what you get from your 23 colonies. As fall draws near, at which time every family wishes honey, even though they may not wish for it strong enough to come to you for it, take a sample of this extracted honey and leave from two to four ounces at each house, telling the people, and especially the children, to sample it, quoting the price you have decided to sell at, and say you will be around with the honey on such a day. When the day comes, take it to them and see if you do not dispose of three times as much as you had hoped to. After this one baiting of all the families within a radius of five miles of your apiary, all you will have to do in future years is to let it be known that you have such extracted honey for sale, and you will find yourself short each year, if you produce the good thoroughly ripened sort, which you should always do."

"How much would you think a market built up in that way would take?"

"From 1000 to 5000 pounds, depending on the population or the number of villages."

GENERAL CORRESPONDENCE

SOME OBSERVATIONS ON MARKETING HONEY.

Unequal Distribution; the Uninformed Bee-keeper and the Devious Methods of Some Honey-buyers the Source of Low Prices.

BY OREL L. HERSHISER.

Continued from last issue.

From the foregoing it is apparent that, under normal conditions, honey sold to the wholesale dealer at the jobbing price, and by him to the retail grocery, appears to require an advance of from 40 to 100 per cent before it reaches the consumer. In other words, honey which is sold by the producer at from 14 to 16 cts. costs the consumer from 20 to 30. As profits and opportunities for purchasing and selling are variable it will be understood that the above figures are approximate; but they are sufficiently accurate to serve the purpose of this discussion. To apply the above figures to a specific example easy to understand: If a bee-keeper has a crop of honey worth \$1000, if sold at the jobbing price, the consuming public pays from \$1400 to \$2000 for the same, which is the amount the bee-keeper should receive for such honey crop if he sells to the consumer direct, except a reasonable discount equivalent to the difference in the labor and expense resulting from putting the honey up in containers of considerable size for the family trade instead of the small containers handled by the grocery trade. Need any thing further be said in favor of the producer retailing his own honey? Let every bee-keeper who can do so retail his own crop, as far as possible, classifying his customers as above pointed out; and if he is a good salesman he will be abundantly compensated for the extra work; and, coming in direct contact with the consuming public, he is able to educate it to the use of honey as only the practical bee-keeper can.

The bee-keeper should cultivate and develop his ability as a salesman. He should study what to say and what to leave unsaid. He should acquire the art of versatility. A certain line of argument or discussion will win one customer while entirely different tactics are required with another. Let whatever you say about your goods be the truth. You produced the honey, and know all about it. You were present from the time the bees began work in the spring until the crop was secured. You know how the bees were built up for the harvest; when the supers were put on; when you took them from the hives; with what care you kept the different kinds of honey separate, and how you allowed it to remain in the supers with the bees until thoroughly ripe.

Be persistent but not obtrusive. A jovial

and gentlemanly demeanor is a winner. "Vinegar never catches flies." A naturally sour or dyspeptic person may become interested in honey in spite of herself if the salesman, with seeming carelessness or indifference, will manage to drop a remark that will awaken interest before madam closes the door; such, for example, as "My bees are the Italian race, which are reputed to be the best honey-gatherers;" or, "I make a specialty of bee keeping and honey-production, and my honey is as fine as bees can make it," or some other interest-inspiring comment. Having gotten upon conversational terms with your prospective customer, an ordinary talker can easily keep up the interest on the attractive subject of bees, and a sale is likely to be made and a steady customer secured. Most people are anxious to learn, from one who actually knows, all about honey and the mysteries of the honey-bees.

Spend no time or talent in "knocking" other bee-keepers or retailers. It is true that many of them seem to think a good way to get customers is to hunt up those some other person has educated to the use of honey, and, in order to make a sale, quote a reduced price. It is true you are obliged to do just what they should have done—go and hunt up and educate to the use of honey a customer or customers to take the place of those you have lost to the cut-price retailer. But do not say hard things about him. Pass it up; and when the selling season is over, and your pockets are bulging out with the currency of the realm because of the fair prices you have received, while his have a lean emaciated appearance because of having done an unprofitable business, he will be ashamed of himself; but if he should ask you for a loan it will be yours to reply, "My friend, hereafter *stick to established prices* and your pockets will bulge as do mine;" or, "Go to the ant, thou sluggard."

The bee-keeper who retails his honey should study well the matter of containers to ascertain, as nearly as possible, the size with which he can sell at the greatest profit. Having fixed the price for the family trade, the larger the container the more honey will he sell, for this is not the "hand-to-mouth" sort of customer.

For the retail grocery trade the smaller containers are best. In selling to families, offer the larger-sized package first, and sell the smaller sizes only when the larger sizes will not go. Sell tin pails gross weight, and you thus get paid an equivalent for the pail. If necessary, explain why it is sold gross weight. Glass fruit-jars should be charged for at their value besides the value of the honey. Jelly-glasses are sold by the dozen.

There are great possibilities in cultivating the family trade; and if it were worked in all sections of the country to the limit of consumption I honestly believe that, with prices 50 per cent higher than at present, there would not be sufficient honey produced to meet the demand.

In seasons of plenty, sell all you can at remunerative prices; but do not sacrifice your

honey and thus lose the legitimate reward of an abundant crop.

In the season of 1908 there was an abundant crop, and some bee-keepers got panicky and sold out at prices barely above the cost of production. The season of 1909 was not so good; and if some of that honey had been carried over it would have brought better prices. This applies with greatest force to extracted honey; but comb honey can also be kept over if care is exercised.

Let every bee-keeper be alert to the fullest possibilities of his chosen occupation, and determined to obtain the legitimate compensation for his skill, toil, and trouble. It is his lot to produce his crop of honey only by the sweat of his brow, and against many pointed attacks by superior numbers (the bees); but remember that, in retailing direct to the consumer, there is little danger of being "stung." Spot cash upon delivery of the goods is the rule, and an increasing demand with advancing prices is the fair prospect.

Kenmore, N. Y.

ALEXANDER IMMORTALIZED.

His Methods Defended, and Dr. Miller Criticised for Misapplying His Treatment for European Foul Brood.

BY E. E. PRESSLER.

The article appearing on page 760, Dec. 15, entitled, "Some Discoveries on the Alexander Treatment for European Foul Brood, by Dr. C. C. Miller," and its subsequent comments by the editor, are as discrediting to the teachings and writings of the late lamented Alexander as they are untrue.

While I never wish to pose as a writer, or aim to have my name appear in the bee-journals as a critic, I can not forbear in this case (the author being dead) to enter at least my protest against such juggling of that eminent teacher's writings. The article in question is not only doing gross injustice to his memory, but to every bee-keeper who has ever had European foul brood, and also to his many friends.

I have only the utmost regard for both you and Dr. Miller, and believe that perhaps as many bee-keepers are indebted to you two writers as to the late Alexander. It is not my purpose here to belittle you, if I could, but to defend and support the teachings of one who is no more. Realizing full well that you two "big fellows" are amply qualified to refute any wrongful allegations I might make, I am prepared to crawl into my hole without another word if you should be able to "come back" at me.

If this article in GLEANINGS proves one thing more than another, it is that neither Dr. Miller nor its editor is even familiar with the *literal* knowledge of the Alexander treatment.

Nowhere in all his writings can I find where he speaks of "ten days," "introduc-

ing a laying queen on the twentieth day," nor where he "thought" his cure was efficient for American foul brood. Dr. Miller says, "Mr. Alexander never insisted that his plan would succeed with American foul brood, although I believe he *thought* it might do" (italics are mine). Alexander very emphatically said on this very point, "The old American foul brood is incurable. You can save the bees by the McEvoy treatment, but you can not save the combs." About three years ago, when his plan was attacked, and denounced as not being suitable for American foul brood, you, Mr. Editor, appealed to him to straighten out the muddle, which he did in his almost ante-mortem statement in the following lamentation, taken from page 166, Feb. 1, 1907:

"I do wish I could impress on the minds of all bee-keepers that I never recommended any cure for American foul brood. I wish to have it understood that I don't think that, up to the present time, there has ever been a comb that was affected by American foul brood cured of that disease. You might as soon expect a colony of bees to clean out their combs if filled with paint as to expect them to be able to remove the rotten larvæ. Many bee-keepers are continually speaking and writing of these two diseases as one and the same. Now, if it were not for the young and inexperienced bee-keeper I would not notice this mixing-up of a very important matter. Then when my critics go still further, and speak of the cure I recommended for European foul brood as failing to cure American foul brood, and in that way belittle that cure, when I from the first wrote that I did not think it of any use for American foul brood, they do me injustice. You might as well expect to cure American foul brood by throwing a cup of cold water in the grass in front of your hives as to expect to cure it by requeening as I recommended for European foul brood. The reason why American foul brood has never been cleaned out of a comb is because a larva that dies from that disease is so much like glue that the bees can not remove it in its soft state; and before it dries down it penetrates with its spores into the cocoons of the cell until it becomes a part of the comb itself, where it can not be reached by any disinfectants, nor removed by the bees."

Almost on his dying-bed when he wrote the above, are we now to believe this dying man was trying to deceive us when he lamented in the above language? No, surely not; nor can his words be misinterpreted; they are too plainly understood. There are very many similar expressions throughout his writings, positively showing that he did not think "it might do."

Dr. Miller says the Alexander plan consists of a few words: "Make a colony strong, make it queenless, let it remain so three weeks; then give it a vigorous young laying queen. That's all" (23 words). Can any thing be more falsely represented? Alexander never recommended giving a *laying* queen in less than 27 days. This, the very chief point in

his treatment, is *eggless* for at least 27 days. Dr. Miller overlooks this point entirely as essential. Nowhere in all of Alexander's writings did he ever say that a *laying* queen must be introduced four days prior to the hatching of all the old brood. Now the "sage of Marengo" introduces a *virgin* on the tenth day (one day later than Alexander recommends the destruction of all queen-cells or virgins), which makes it possible for new eggs to be in the hive on the fifteenth day, or nine days before all the old drone brood is hatched. Under normal conditions, colonies made queenless with Dr. Miller's "discoveries" make it possible to have a laying queen in the hive earlier than if they were left to their own fate. I wonder how many of those who read his "modifications" believe the doctor when he says that he discovered that diseased brood piled up over an excluder on top of a strong colony will be cleaned out in "eight or ten days"? In fact, he says "even less time may answer when there is not too much cleaning-up to do."

Now listen: 'Mr. Alexander had hardly gone beyond the experimental stage, and it is possible that he never tried any shorter time than three weeks.' Those who had the honor of knowing Mr. Alexander, know, and know it well, that he would not recommend anything to others that he had not thoroughly worked out for himself, not in one season, not on one colony, not in "eight or ten days," but in every conceivable scientific, methodical, diligent, painstaking, and conscientious way on hundreds of colonies for a period of many years. This is against Dr. Miller's one season of experience with European foul brood.

I have had more than ten continuous years, not alone with my own bees, but with those of others, for whom I did the curing. I have gone over the field pretty thoroughly, and tried the Alexander method for the past three years. I have had several hundred badly diseased combs cleaned out in five days over excluders, but the combs had hung in the honey-house all the previous winter and were condemned for wax, but I had trouble in securing supplies for myself last spring, so I decided to use them again, having no fear whatever, as I knew they could be cleaned. In Dr. Miller's case he placed combs with live brood on top of excluders (presumably to save the brood), and when he says "In about three weeks from the time the pile was formed (21 days from the time of the removal of the queen), the queen was laying in what generally proved to be clean combs." Oh how easy! Would or could the results have been different if the queen-cells had never been destroyed and a "virgin of choice stock" substituted? If this kind of teaching were true, no European foul brood could ever have existed. Nature makes ample provision for just this very thing without the intervention of Dr. Miller. In from eight to sixteen days after the prime natural swarm, nature always introduces a virgin (sometimes of "choice stock").

Alexander is very positive in his instruc-

tions on this point when he says, page 1125, Nov. 1, 1905, "Supply each one of your diseased queenless colonies with a ripe queen-cell or virgin just hatched . . . on the twentieth day after you have removed their old queen, *and not one hour sooner*, for upon this very point your whole success depends; for your young queen must not commence to lay until three or four days after the last of the old brood is hatched, or 27 days from the time you remove the old queen."

Does this savor of the "experimental stage" from a man who was as honest and thoroughly positive as the firmament?

To my mind it is obvious that in this, his first trip, Dr. Miller did not travel over the Alexander road. How, then, does he know where the mud-holes or bridges are? He made a guess, and says the road is macadamized (easy), and that sewer-pipe was used in construction for the underdrains, and that he has "discovered" a much nicer grade, recommends that less expensive drain-pipes be used, and a crosscut of Wingard's four-mile swamp can be made by supplying stilts for the horses, therefore reducing the distance three miles. I will admit that Dr. Miller is a good guesser in the "bee-line," but on this Alexander road he has another coming.

Mr. Editor, how is Dr. Miller capable of modifying or "discovering" something new in this road, when it is manifestly true that he never traveled it? Is it possible, after paying \$50.00 for this very information in order that the world may profit by it, that you do not know what you bought? After being at his house, and an eye witness to his methods, do you believe Alexander was a fakir and a liar? Your comments are worded in your characteristic adroit and somewhat illusive style; but your headlines and general import are misleading, this being true not only in the articles of Dr. Miller, but with the articles of Alexander. It is mainly through your editorial and comments that this misunderstanding occurs.

After writing the above, in substance, I decided to allow you and Dr. Miller sufficient time to see the error of your way, and you would surely endeavor to retract in the following issue of GLEANINGS; but, alas! no repentance; instead, a continuation of the same standard of teaching. Even if Dr. Miller was correct in his deductions from his very limited experience with European foul brood and the Alexander method of treating it, it is a question if such knowledge is safe in the hands of the average bee-keeper, not considering the amateurs.

In aiming to perpetuate the memory of Alexander, and safeguarding the interests of all bee-keepers, let me suggest that hereafter Dr. Miller's data of any new "discoveries" on any of Alexander's teachings be first submitted to the University of Copenhagen before it be given to the public.

Williamsport, Pa.

[We decided to turn our pugnacious correspondent over to the "tender mercies" of Dr. Miller, feeling that if he (or we) were

really "guilty as charged" he would confess; if not, he would fight it out. We decided to have the "fracas" all in one issue, and asked Dr. Miller to reply, which he does.—ED.]

Mr. Pressler is anxious that no injustice shall be done to one who can no longer defend himself. For this I thank him heartily, whether I am guilty or not of having done any injustice to Mr. Alexander. Moreover, if I have in any way made any wrong impression as to the truth about the treatment of foul brood, the man who calls my attention to the wrong does me a friendly turn; so again I thank Mr. Pressler.

I must confess that it comes to me as a great surprise that in writing what I did I should be found doing gross injustice to the memory of Mr. Alexander, for it was my desire and design to give him the fullest credit for having given to bee-keepers his treatment of European foul brood. Certainly, without his teachings I do not think I should have tried any other treatment than throwing the diseased bees upon foundation.

I think, however, that the injustice Mr. Pressler has in mind is not so much—perhaps not at all—trying to withhold any credit due Mr. Alexander as it is misrepresenting his teachings. I am very sure that nothing of that kind was intentional, and I think it quite possible that Mr. Pressler's understanding of the matter comes from having the two treatments mixed—the Alexander treatment and the treatment I used. And right there may be seen the danger of getting into trouble by taking either one of two courses. If I made no attempt to give credit to Mr. Alexander, then, as I might say, "That's the Alexander treatment, distorted, to be sure, and the fellow gives no credit for it, trying to palm it off as his own." If I took the other course, which I did take, giving Mr. Alexander full credit, then there is the danger of the understanding that something I have done may be understood as being according to Mr. Alexander's teaching. Well, I'd rather be thought a liar than to be thought both a liar and a thief, so I'm glad I took the course I did.

I beg, however, friend Pressler, that you will not believe me guilty of either of the bad things I have named; but if I have in any way misrepresented, please set it down to the fact that I am not an adept at properly expressing myself (the use of the English language always has bothered me); for I want very much to retain as much as I can of that regard you say you have for me.

And now let us look at the bill of particulars. The first item is "That neither Dr. Miller nor its editor is even familiar with the *literal* knowledge of the Alexander treatment." I am not solicitous about the editor—meaning, of course, the editor of GLEANINGS—for if he isn't guilty of that he is guilty of other things; but I want to plead for myself that at least I have read with very much interest the article by Mr. Alexander in GLEANINGS for 1905, page 1125, which I believed, and still believe, gives correctly the

Alexander treatment for European foul brood. I am willing to say at least this much for the editor: That, as he appended an unusually long footnote, the probability is that he read the article.

You say, friend Pressler, that nowhere in all Mr. Alexander's writings can you find where he speaks of "ten days." Well, nowhere in all my writings do I know of any place where I said any thing about his speaking of ten days. In the article in question, page 760, I speak of ten days four times, but each time as being part of my treatment varying from the Alexander treatment, and the footnote mentions it in the same way.

You say you can't find where he speaks of "introducing a laying queen on the twentieth day." Well, I can't find where I said he spoke of it. But I came so near it that there's no use quibbling about the difference. I gave as the Alexander treatment, page 760, to let the colony be queenless three weeks and then give it a laying queen. And now I have the very humiliating confession to make, that, until I began writing this paragraph, I didn't know that in giving the résumé of the Alexander treatment quoted by you, I had in the least misrepresented the said treatment, and turned to page 1125, 1905, to quote Mr. Alexander's own words about giving a *laying* queen. (I think I had never before given his own words in quotation marks.) What was my amazement to find that, instead of "laying" the word was "virgin"! I had read it over a number of times (twice at least after reading your article), but each time *thinking* "laying" as I read "virgin," discovering my error only when I went to make a direct quotation with the proper quotation marks. Talking it over in the family, one member asked me, with just a touch of reproach in the question, "How did you come to make such a mistake?"

"I don't know," I replied, "do you ever do any thing of the kind?"

"Um-huh," she replied, with her mouth full of pins.

And there you are. It's a queer trick of the mind that I don't suppose I'm at all alone in. I've done it occasionally all my life, and I'm afraid I'll never outgrow it. I can only say that I am exceedingly sorry for the blunder, and express my thanks to you for calling attention to it.

You say you do not find "where he 'thought' his cure was efficient for American foul brood." Neither do I. Nor did I say he thought so. As you put it, it is a positive statement that I knew he thought his cure was efficient. There is some difference between making a positive statement and saying "I believe." There's a very wide difference between saying "I believe he thought his cure was efficient for foul brood" and saying "I believe he thought it *might* be so." I do not at all think that within the next year three cents will buy a bushel of good wheat, but I think it is within the range of possibilities that it might do so.

But I do not believe that you intentionally misrepresented what I had said, for you im-

mediately quote correctly my exact words, which goes to show that I am not the only one who can read a wrong meaning into words; but you can go a step further than I, making the direct quotation without seeing your error, while I saw my error as soon as I thought of making a direct quotation. Well, we're none of us infallible.

I think I was fully warranted in saying "I believe he thought it might do so." On page 1126, GLEANINGS, 1905, the editor says, "The question may naturally arise now, whether or not this Alexander treatment would not prove equally effective in the case of foul brood. We do not know. Mr. Alexander is somewhat doubtful," etc. If he was in any doubt about it, then he thought it might do so, even if there was only one chance in a million.

Very likely you will say, "But what about that article on page 166, 1907, in which Mr. Alexander says he never recommended any cure for foul brood, and from which an extract is given?" I have no recollection of reading that article or the extract from it until now reading it in your article. When I receive GLEANINGS, it is not carefully read and digested, but hastily crammed to find whether any thing in it may be commented on in Straws, the cramming and the writing to be done inside of 24 hours. Afterward there may or may not be careful reading. Evidently that article on page 166 never had close attention until the reading of your article, and so slid from the memory like grains of sand from a surface of glass, while the article on page 1125 with its footnote was distinctly present when I wrote, "I believe he thought it might do so." I am sorry I didn't know at the time all that Mr. Alexander had written, but I didn't.

As to the matter of the "experimental stage," is the whole subject of European foul brood beyond experiment? Is the Alexander treatment universally accepted? If Mr. Alexander were yet alive, are you sure he would do no further experimenting in this matter?

In giving a resumé of the Alexander treatment, I made the very stupid blunder of putting "laying" for "virgin," and 21 days for 20 days. I think that's all that's wrong in it. I don't know that that one extra day does any great harm; but the other error is exceedingly bad, and I am very, very sorry for it. But in reply to your question, "Can any thing be more falsely represented?" I reply, "Yes; bad as it is, if I were to buckle right down to it I think I could do even worse than that."

On your part, friend Pressler, there are several counts in the indictment against you that must stand unless you can refer to the places where the things are to be found that you quote against me. As two of them are in quotation marks they are supposed to be my exact language, and ought not to be hard to find. If found, my apology is ready.

Don't you think we had both better reform?

C. C. MILLER.

Marengo, Ill.

THE ALEXANDER METHOD OF TREATING EUROPEAN FOUL BROOD.

All Depends on Having the Colonies Strong.

BY IRVING GROWER.

In common with many other bee-keepers in central and eastern New York I have had European or black foul brood in my apiary. I have had the inspector of apiaries for our district prescribe treatment which consisted in shaking on foundation in clean hives, melting up the combs, and disinfecting every thing thoroughly. This I did in 1902. The season was poor, and the shaking was more or less a failure, so that the trouble showed up quite prominently again the following spring. I continued the shaking process with varying results for several seasons. One thing which the inspector impressed on my mind was the importance of good Italian stock, and that I should keep all colonies strong. At that time he made the statement that some strains of Italians seem to be immune to the disease. I had been a honey-producer fifteen years before I ever saw the disease, and half or more of my colonies were Italians, the others being all grades of hybrids. Each season I Italianized more of the colonies.

When the Alexander method of treatment was published I pronounced it too good to be true, but at the same time made preparations for trying it, and the following season purchased a breeding queen from one of the noted breeders. Mr. Alexander advised making all the colonies strong, either by giving brood from healthy colonies or by some other plan. Now, any one who has had any experience with disease will hesitate before placing frames of brood from healthy colonies in those that are diseased, so I decided to strengthen these diseased colonies by shaking young bees from five or six frames into each hive which I intended to treat. I then made these colonies queenless, and left them so 21 days. Being busy with other work I did not make an examination until almost time to give the queens that I had reared, and I found that the colonies were not as strong as I thought they were, so I shook in some more bees and introduced the queens. When brood-rearing began to show in the hives the disease was still there except in one or two cases, so of course I voted the treatment a failure.

It was by an accident that I found that, if we wanted to be successful with the Alexander treatment, we simply had to make the colonies *strong*. The season following my failure I prepared to shake all colonies that showed the disease on to foundation when the honey-flow was nearly at its best. When the time arrived I found that I had eight colonies to treat; and as none of them were strong I decided to select six of them and shake the bees into two clean hives, as there was quite a lot of good brood in the frames, so that there would be enough young bees

to take care of the rest of the brood if it were tiered up.

I intended to shake again on to foundation, giving a queen at the opening of the buckwheat season. This I did, but there were too many combs from the six hives to put over one hive; and as it was nearly dark, and as there were the two other hives which I had not shaken, the queens of which were old and not laying, I decided to give a part of the combs to these two hives, and, after the buckwheat flow was over, to kill the bees, extract the honey, melt up the combs, etc. I used the hive illustrated in "Quinby's New Bee-keeping," called the new Quinby hive. It has 16 closed-end frames. In each of these two hives I filled the lower part and then put 16 more frames on top, making 32 in all. I did not open these colonies until the season was over, and all the colonies were nearly out of brood; and then I found plenty of honey in the hives, and in each were fine young queens. After some consideration I decided not to destroy the colonies, but to pack them for winter. They wintered well, and were the first to swarm the following season, and they did not show a sign of disease, nor have they done so since.

Unconsciously in the above I had done what Mr. Alexander had advised; that is, had made the colonies strong. The natural instinct of the bees to supersede a failing queen caused them to take advantage of the condition, and do it at the time, making the cure complete.

Cooperstown, N. Y.

EUROPEAN FOUL BROOD.

Golden Italians More Immune to it Than the Leather-colored Strains.

BY EDGAR WILLIAMS.

I have read with interest Dr. Miller's account of his experience with foul brood. He said the disease was very mild, most of the cases showing only a few diseased cells. If the colonies had been badly affected I do not believe he would have been as successful.

A few years ago I had thirty colonies, all badly diseased; in most of them over half the brood was affected, and in some of them there was very little healthy brood. I gave all the colonies the McEvoy treatment, and a few days afterward noticed a quantity of matter as large as a bean in front of one of the entrances. Whether this was diseased I can not say; but anyway a good many of the colonies showed signs of trouble shortly after the treatment was given, and by fall all were slightly affected, a few of them being simply rotten with it. The following spring all were badly diseased again. I sent a sample of the brood to Washington, and it was pronounced European foul brood. I tried nearly all the remedies then known—drugs, etc., but nothing gave any help.

I had heard of the Italians being able to

resist disease, so I sent for a dozen queens. The following spring the colonies to which I had introduced these queens were healthy, although there were diseased colonies all around them. Since then, with the pure Italians I have had scarcely any trouble. Some of the leather-colored strains showed the disease quite badly. The goldens are the ones that resist the trouble best, very few of them showing any bad symptoms; and when they do there are never many cells affected, and these are always cleaned up when the honey-flow opens.

In the spring, during the breeding months I look over each colony every week or ten days; and if a few cells of disease are found, that colony is marked; and at the next week's examination, if the trouble is still growing I kill the queen at once. Then in about ten days I give a cell from my select golden stock and the job is done. If the queen is purely mated, such colony is cured; but if she is mated with a black or hybrid drone I generally have my work to do over another year. I have had extra good hybrids, nearly all yellow, that showed the disease as badly as the blacks. It is necessary for the colonies to be pure. As my bees are now nearly all immune to the disease I handle them just as if there were none among them. I once took some combs, nearly half of the brood in which was affected, and gave them to a colony of goldens. In two or three weeks' time these combs were healthy. One fall I had four or five colonies that were so weak with the disease that I knew they would not winter. I sulphured them, and the next spring hived golden swarms on the combs, and the bees remained perfectly healthy.

TWO QUESTIONS.

If cappings are rendered in the solar wax-extractor, is the flavor of the honey injured so much that it would be unsalable? The temperature of my bee-cellar this winter has not been above 40 much of the time, and it has been down to freezing once or twice, the general average being about 38 degrees. The bees seem to be wintering well. I have had a fire in the cellar occasionally. Would it do any harm to start the fire with kerosene if I used wood afterward? There is some smell from the burning oil at first.

Pierpont, Ohio.

[Most authorities would consider it very risky to exchange combs promiscuously in a yard where European foul brood existed; but more than one bee-keeper has reported doing this very thing with no apparent bad results, provided the apiary is stocked with golden Italians. Who else can add testimony on this question?

The honey from a solar wax-extractor, unless great care is used, is quite likely to be injured. Most producers drain as much of the honey out of the cappings as possible before putting them into the solar extractor, and in this way the loss is not very great.

We do not believe that there would be any danger of losing bees if kerosene is

used simply to start the fire. However, we think that as little of it should be used as possible. After some practice you can start the fire quickly with a very small amount of oil.—ED.]

ANOTHER WHO HAS USED THE ALEXANDER PLAN OF CURING EUROPEAN FOUL BROOD.

BY F. W. LUEBECK.

I do not know what previous experience Dr. Miller has had with European foul brood; but all through his article there is evidence that he must be a new hand with the trouble. If he thinks his bees are now cured he will be sadly disappointed, and next season in May or June he will have another story to tell. During the summer a newly infected colony, or a colony just starting a new brood-nest, will remove all diseased larvæ, and irregular brood or brood of different ages close together is the only evidence of the disease. However, as soon as the bees come again to a state of low vitality, as in the spring, they will not remove the dead larvæ, consequently the disease will make headway very fast. Italians having a vigorous queen will succeed to a certain extent, while the blacks or hybrids will make no effort to clean out the foul matter.

Combs above an excluder, taken from foul broody colonies and given immediately to healthy colonies, will start the disease in a short time; that is, if unsealed brood is present in the healthy colony at the time that such combs of honey are given; but, on the other hand, if the combs are away from the bees for some time there would be no direct infection, as the germs can thrive only in dead animal matter. But it is just possible that some of the cells of honey contain the spores of the germs; then, as soon as such cells are opened and the honey fed to the larvæ, infection is the result.

I tried the Alexander plan on about 50 Italian colonies when they were fairly strong, and when there was not too much dead brood, and perfectly healthy brood has been the result.

Now, it is not my intention to discredit the McEvoy treatment for European foul brood; for when the disease breaks out for the first time, and most of the combs are a mass of dead matter, there is, perhaps, no other way than to remove them; but as soon as possible thereafter, all queens of such colonies should be superseded by those of a more immune and vigorous strain of pure Italians. Hybrids and blacks should not be tolerated under any circumstances in a locality where this disease is present. Nature's object in the disease is to improve the races of bees by destroying and weeding out the weak ones; so if we breed our queens only from the most immune strain, we shall aid nature direct, and the trouble will disappear as our bees improve in vigor and vitality.

It is now four years since my apiaries were struck by this disease. I have 81 colonies at

present, which were all nice and clean last fall, but I believe the disease will appear again next spring. However, I am not worrying much about it, as I have learned to control the trouble without destroying the combs, so that I shall not be obliged to interfere with the gathering of a honey crop.

Knox, Ind.

PREVENTING ABSCONDING WHEN TREATING FOUL BROOD.

Do the Bees Ever Mix Honey and Foul Brood in the Hive?

BY E. M. GIBSON.

As Dr. Miller has broken the ice I may say a few things in corroboration of what he says on page 728, Dec. 1. From what he has written or from what I may write, if any one gets an idea that foul brood is not a bad disease to combat I can assure him that he will change his mind if he is so unfortunate as to get it among his bees. The doctor says he got desperate because so many colonies were absconding. This could have been avoided by putting a queen excluder on the bottom-board of the hive in the same manner one would place it between the super and brood-nest, leaving it on three or four days, when the bees would have cells drawn, and honey and eggs in many of them. The excluder could then have been removed without any danger of bees leaving. This, of course, can be done only with interchangeable hives, or, at least, not with hives with the floor nailed on. I did not disinfect or burn out my hives, and did not use lye in the water that I scalded my frames in. Mine was American foul brood.

As to infection being carried into the super, I would say I put eight colonies on to foundation, putting all the combs from the brood-nest into the supers and putting them on top with a queen excluder between them. All the combs put above were more or less infected. I left them until I could not find a cell not filled with honey. I marked hundreds of those infected cells, but never found one with honey until it was thoroughly cleaned out. When the scale was too hard to be removed they invariably tore the cells out and built new ones. I use those combs now.

I have never been able to find honey and scale in the same cell. Has any one? I am curious to know from what source the honey was obtained in which chemists have found foul-brood spores, whether extracted or taken from a well-filled comb. Extracted honey thrown from a diseased comb could not fail to be infected; but with two years' diligent search I have failed to find it mixed in the comb; yet the microscope might show particles too infinitesimal to be seen with the naked eye; but with my present knowledge and experience I would not hesitate to feed back honey taken from the super above a queen-excluder of a diseased colony. Those eight colonies all had to be treated again as I expected.

Jamul, Cal.

BEE-KEEPING AS SEEN ON A TRIP THROUGH EUROPE.

BY JAS. B. PAIGE.

It was my good fortune during the past summer to travel 3500 or 3600 miles by auto on the Continent and in Great Britain. I was in England, France, Italy, Germany, Switzerland, and Holland. I had with me a small pocket camera, so took advantage of every opportunity to get pictures of interest to bee-keepers. At the suggestion of Dr. Burton N. Gates I am sending a few prints, thinking they may be of use in GLEANINGS.

Fig. 1 shows bees in the Bernese Alps, Switzerland, on the road from Interlaken to Grindelwald. The elevation is 3000 to 4000 feet. There are two rows of "skeps" covered with burlap, in the house which is open, and shingled with pieces of flat stone. In the background are bare mountain-peaks over which the fog "warps" in graceful curves and fantastic shapes, to disappear again in invisible mist. From the field in which the house is located one obtains a most beautiful view of the eternally snow-capped peaks of the Jungfrau (13,670 feet), the Monch (13,468), the Eiger (13,040), besides many



FIG. 1.—BEES IN THE BERNESE ALPS, SWITZERLAND.]

peaks of equal height, including the Wetterhorn, Schreckhorn, Finsteraarhorn, and Silberhorn, and, in the beautiful valley below, the turbulent, rushing black Lutschine laden with debris from the upper and lower Grindelwald glaciers in transit to Lake Brienz.

Fig. 2 is a Swiss "chalet" in the Lüttschen Thal, near Grindelwald, Bernese Oberland, Switzerland. Six "skeps" covered with burlap sacks are outside the windows of the living-room, protected from rain by the overhanging roof. Note the wood nicely piled beneath the hives. The upper floor is reached by a pair of outside stairs with a landing on the balcony, seen between the windows above, and those near which the "skeps" are standing. The garden at the end of the chalet was filled to overflowing with flowers and vegetables.

In the vicinity of this Swiss home the fields and mountainsides were richly covered with vegetation in which honey-producing flora was abundant. White clover grows here in great profusion, and occasionally one finds sweet clover.

Queer hives in a farmer's garden at Payerne, Switzerland, are shown in Fig. 3. All along the route from Lausanne to Bern, through the rich Boyer Valley,

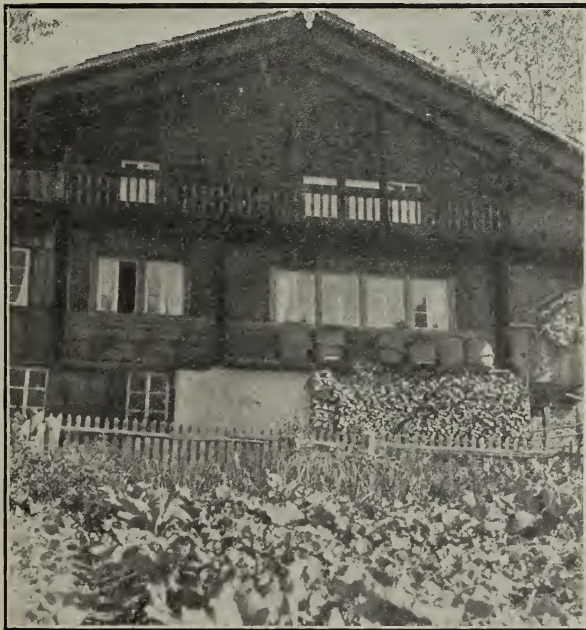


FIG. 2.—SIX "SKEPS" COVERED WITH BURLAP OUTSIDE;
A SWISS "CHALET."



FIG. 3.—BEES IN A FARMER'S GARDEN AT PAYERNE, SWITZERLAND.

many hives of bees are seen about the homes of the farmers. Most commonly the "skep" is seen, but occasionally one notices a modern movable-frame hive. The style of hive shown in the picture is rare. It was, indeed, a wonder. Consisting of a long case, the back part of the roof hinged to open, it contained three sets of movable frames, and had sufficient space above for three sets of one-pound sections. The sets of frames and sections were placed end to end without partitions between them. After a spirited speechless sign conversation carried on with the farmer and his "frau," I was permitted to view the interior of the hive in the foreground and to take a picture of the yard. The bees were of the black variety, and decidedly energetic, so that my investigation was neither thorough nor protracted, and I am unable to state whether there were multiple queens present or not.

Fig 4 is an apiary near Arnhem, in Holland. The shed is covered with tile. The "skeps" have openings above the middle. Usually the skep super is made of straw, being a miniature hive, but in some instances supers of wood are used, and it is not unusual to find skeps standing in the gardens cover-

ed with large red earthen bowls to protect them from the rain and heat.

Black bees, a warm day, and a hot time in getting the pictures are my recollections of this apiary.

Amherst, Mass.

HIVE-STANDS.

How the Ideal Foundation for a Hive Should be Built; the Value of Concrete Slabs under the Regular Stands.

BY F. GREINER.

Judging by the many fine illustrations of bee-yards in the different bee journals, for example on pages 772, 773, Dec. 15, the hive-stands often employed have some grave faults. Even our good Dr. Miller, according to his own words, makes use of a very poor affair. A hive-stand alone may be considered an insignificant factor in honey production; but it is my opinion that a good one may at times increase the yield from the apiary materially. It may save valuable time to the bees; it may prevent loss of bees and sometimes even of queens. A good hive-stand should, according to my views, embody certain principles of which some seem to have

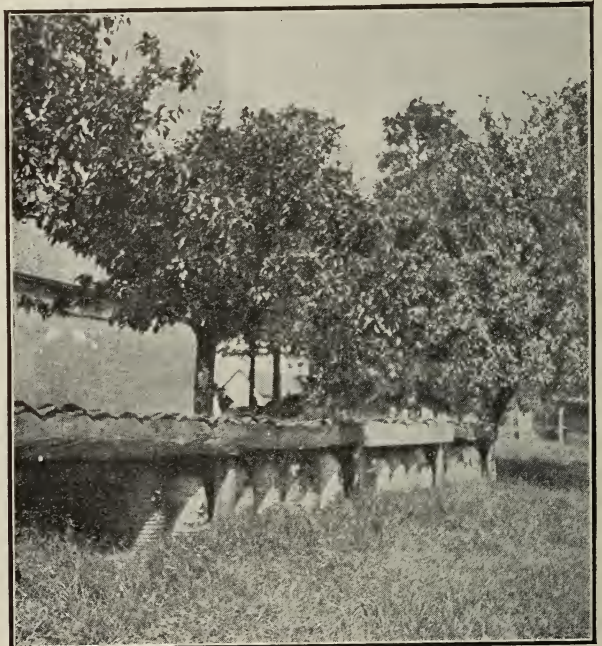


FIG. 4.—AN APIARY OF STRAW SKEPS NEAR ARNHEM, HOLLAND.



HIVE-STANDS PROPERLY CONSTRUCTED, AS USED BY F. GREINER, NAPLES, N. Y.

been lost sight of. Foremost, it should assist the bees in gaining their hive-entrance safely. When A. I. Root introduced his Simplicity hive forty years ago he advised the use of four bricks for the hive to stand on, with a heap of sawdust piled up in front of it. Many of us tried this. The sawdust kept down the grass and formed a passageway from the ground up to the hive; and although it seemed to be agreeable to the bees, it had some unpleasant features, like blowing into the hive when dry, rotting the hive when wet, and then the grass crept over it and filled it full of roots, etc. An unplanned board is almost as acceptable to the bees, and is much more reliable. I believe the use of sawdust has entirely gone out of fashion, and the pine board has generally been adopted for an alighting-board. I theorize that it is better than cement on account of being a better non-conductor of heat, but, of course, it is not as lasting.

The hive-stand should be close fitting to the hive all around. It should not furnish an opportunity for bees to cluster under the hive nor afford a hiding-place for toads during daytime. These ugly fellows are very objectionable visitors in the apiary, and eat a great many bees when they can get them. As the toad is very useful in other ways I never kill one; but when I find one around my hives I carry it away a long distance; but by not allowing harboring-places for them under and among the hives, very few of these animals stay around.

The easiest way to make every thing snug

is to make a shallow box of the same size as the hive bottom, making the front end slanting and tight-fitting against the hive. There should be no holes left anywhere for bees to enter the space under the hive. I have known bees to set up housekeeping under the hive, totally ignoring all the new-fangled fixtures which we had put inside, just because the hive proper was not well guarded.

A hive stand should preserve the least amount of actual contact between the hive-bottom and the stand. At one time we were using a hive-stand which consisted of a platform made of common lumber, somewhat larger than the hive-bottom, and nailed upon two pieces of scantling. As Dr. Miller says, this is the poorest thing one can use. Between the two thicknesses of lumber moisture collects, and soon both hive and stand rot out. Ants establish themselves here, and perforate the timber. Other disadvantages I need not mention. The shallow box outlined above presents only the edges of the boards upon which the hive-bottom rests; and there being no chance for moisture to collect it will last about as long as any other part of the hive.

The only weak point of the hive stand described is its readiness to rot away. As I make them they are five inches deep; but after ten years' use almost nothing is left, and a new one has to be substituted. The cost, however, is slight, as but a small amount of inferior lumber is required to make one. Dealers offer this hive-stand at 12c's each, which is as cheap as I can get them out myself.



F. GREINER'S APIARY, NAPLES, N. Y., IN MID-WINTER.

I make them of rough lumber. They last as well unpainted as painted.

It would be an improvement, and enhance the lasting qualities of the hive-stand, as well as make things very neat and tidy, if a cement slab were put down first and the stand placed on it. I am planning to lay out my home yard carefully, making exact measurements: dig the sod off for a space 2½ to 3 inches larger all around than the stand will occupy, filling the space with cement even with the lawn. It is a very pleasing sight to have nicely painted white hives stand out on a well-kept green lawn. I want the lawn at all hazards, but have found that it requires a good deal of handwork to keep the grass down next to the hive where the lawn-mower does not cut. Somehow, and for good reasons, the stools of grass make their heaviest growth right here where only the pocket-knife or shears can be applied. This very annoying feature I expect to eliminate by the cement margin around the hive. A few bee-keepers are situated so as to keep a few sheep in their enclosed bee-yard; and, indeed, the sheep keep down all vegetable growth nicely; but even this best of all methods is open to some objections.

The photo which accompanies this shows my hive-stand as it has been used on different styles of hives in my yards for more than 25 years. The alighting-board as shown is painted white in order to make a better contrast with the surrounding green grass. In reality I do not paint them. If I were to use paint on the smooth surface of the board I would sprinkle sand on the paint while still green. Even a weakened bee would then never "slip" nor lose its foothold.

Naples, N. Y.

[There is one point in favor of a hive-stand with slanting board front which our correspondent has not touched, or at least only incidentally. In early spring, especially after long confinement, bees will often venture out when the sun shines brightly, notwithstanding it is a little too cool for them to remain out long. They will make a few circles, void their faeces, and return to their hives, or attempt to do so, in a more or less chilled condition. Many of them will alight on the ground; and if the approach to the hive is difficult or slippery, some will be lost and never get into the hive; whereas an easier approach, like that shown in the illustration, will induce the bees to go into the hive.]

While we do not necessarily lose bees that are chilled outside, yet unless a warming day comes up in the next four or five days or a week, these bees will die. If a temperature of 70 degrees with warm sunshine comes on within the period named, most if not all the chilled bees will "come to" and enter the hive. Even then an easy approach is quite important.

Some years ago our Mr. F. J. Wardell, then in charge of our home yard, called attention to the fact that those colonies not supplied with slanting-front entrances showed a greater spring dwindling than those that were

so supplied. The reason was quite obvious when we began to look at the number of dead in front of the hives having vertical-front entrances.

This is a matter of considerable importance, and our readers should take note of the comparative mortality in front of their hives.—ED.]

THE GROWING OF BUCKWHEAT FOR GRAIN AND HONEY.

How to Prepare the Soil; the Old-fashioned Black Buckwheat Better for Honey.

BY J. H. M'GOWAN.

I send a snap shot of a buckwheat-field in full bloom. The growing of this crop here is considered by some an uncertainty, while others call it a "sorry crop;" that is, they are sorry when it is good that they did not sow more. And sorry, when it is bad, they sowed so much. But in this article I will try to tell how one may be almost sure of getting plenty of bloom (what the bee-keeper likes to see) and plenty of straw and grain.

KIND OF SOIL.

To grow this crop to its best, several things must be taken into consideration. First, the soil. Any kind of well-drained land will answer. Buckwheat will not grow on ground that is wet and heavy or where the water stands and gradually dries up, leaving the soil in a hard, lifeless condition. It does best where the land is naturally dry, or made so by proper draining.

PLOWING AND PREPARING THE LAND.

Here in Butler Co. we begin to plow just as soon as corn is planted—about May 25. Each day's plowing is rolled or dragged down in the evening. This is important, as one should keep in the soil all the moisture that is already there. We follow this plan until plowing is all done.

HARROWING AND SEEDING.

Now, then, the work is only partly done, as it is necessary to keep after this field with a good spring-tooth harrow or disk and roller alternately until seeding time, when the seed-bed should be perfectly clean, fine, and solid. It is now ready to drill in (never broadcast), provided the proper time is at hand. Here we drill from July 1 to 20. Early sowing insures a large yield of straw and bloom, while late sowing usually fills the best, as the sun is then not nearly so hot during the time of bloom. I have seen fields sown early turn brown in two days on account of the hot sun.

HOW MUCH SEED TO SOW PER ACRE.

One and a half bushels Japanese, and one bushel of silverhull or little black is about right. In the Japanese variety the grain is larger and the stalk does not branch out so much as the other two varieties mentioned. This is the reason why more Japanese should be sown per acre; but if honey is a consider-



M'GOWAN'S BUCKWHEAT IN FULL BLOOM IN BUTLER CO., PA.

Mr. McGowan, by a close study of the details, prevents failures and makes the crop a very reliable one.

ation I would advise sowing the little black or silverhull, as it blooms until cut or killed by frost.

THE USE OF FERTILIZER.

There is another important factor in the raising of this crop; and that is the use of fertilizer. We never think of growing it without using from 100 to 150 lbs. per acre of acid fertilizer, costing from \$10.00 to \$12.00 per ton. It just seems to make it boom—makes both grain and straw, and a much larger yield. Last year I sowed three fields to buckwheat. The first one was drilled in July 6; the straw was medium, and yielded 16 bushels per acre. The second was drilled in July 11; straw heavier than that in the first field, and yielded 22 bushels per acre. The third was drilled in July 19, straw like the first field, but yielded 25 bushels per acre. As a rule, early sowing gives large straw and a poor yield in bushels, while late sowing is the opposite.

Here buckwheat is grown for the following reasons: It comes quick; is easily harvested; is a splendid bee pasture; in fact, it is all we have to depend on. The straw is valuable on the farm. The flour has a ready sale at good prices on account of its national reputation. Nothing is quite so good as buckwheat for poultry; and when ground in connection with corn and oats it makes the best kind of feed for milch cows.

I would urge every bee-keeper, if at all possible, to put in at least a few acres for the

bees, and to furnish some of those good warm cakes which we all like for breakfast. Prospect, Pa.

[We consider this article one of the best and most comprehensive we have ever received. Buckwheat is nearly always a paying crop, particularly as it enables the intelligent farmer to secure a double investment out of his land. As buckwheat pancakes are becoming more and more popular, good prices are usually obtained for the grain. It will, therefore, behoove the bee-keeper farmer, if he has not had much experience in growing this crop to give this article more than a mere passing attention.

What our correspondent says about black buckwheat being better for *honey* seems to confirm our experience. Has any one else noticed the same thing? The question of the kind of seed a bee keeper should sow is an important one to consider, and we hope our friends in York State, where so much buckwheat is grown, will not be slow to respond.—Ed.]

THE LONGEVITY OF QUEENS RAISED BY BREEDERS.

BY F. DUNDAS TODD.

In the literature of bee-keeping much space is devoted to the problems that surround the purchase of queens from breeders and their introduction to hives in the apiary. The

transportation of the bees is generally viewed as practically solved; and once the queen has been accepted and eggs have been laid, the whole transaction is usually considered as being complete. Only once have I seen a questioning note—the writer hinting that one shouldn't halloo until a few months have elapsed, for supersedure was not infrequent. Since little in the way of definite facts has appeared on this subject it may be interesting to put my own experiences on record, even if my bee-keeping career is a short one.

In my first season (I lived then in Illinois) I bought two queens from a breeder in Kentucky. They arrived safely, and were introduced without difficulty. They were alive in mid-summer, the next year, when I disposed of my hives. In July, 1908, after the honey-flow was over in this part of the world, with but little pickings in the fall, I received from a breeder in Ohio five queens, all of which were safely introduced, and were alive at the end of August, when the last examination of hives was made. One of them was killed by starvation in January; the others died of spring dwindling.

On August 24 I received a dozen queens from the Kentucky breeder, and introduced all of them, apparently with success. The hives were not opened again after the cages were removed until the end of January, when indications of starvation forced investigation. I found four dead with plenty of bees; three died of spring dwindling, and five were alive at the end of the honey-dew flow—honey-flow did not happen—of 1909. Apparently there had been no attempts at supersedure.

Early in April, 1909, I bought a lot of hives in moderate condition; and, being anxious for increase, I ordered from a breeder in Texas a dozen queens. There, as here, had been a pollen-dearth, so my order did not arrive until May 12, and it happened to be one short. One queen was in poor condition on arrival. The day was cold and rainy; and so, choosing the lesser of two evils, I gave the cage to a queenless hive, but the queen was found dead after a few days.

Nuclei were formed for all the others, consisting of three or four Gallup frames of sealed brood and adhering bees. All were accepted and started to lay. One hive showed eggs in 6 days; one in 7 days; two in 9 days; one in 11 days; two in 12 days; two in 13 days; one something over ten days.

A week after introduction we had a killing frost on three successive nights, that play-havoc with the fruit-blossoms. Nectar and

pollen had been coming in freely; in fact, one hive with a fine reputation had hardly an empty cell, all being full of brood or stores, notwithstanding I had robbed it of a frame of stores at three different times to aid weaker colonies. On the 22d I started to feed all hives having young queens; later I did the same wherever needed. I feel it necessary to mention these facts in view of later developments.

When once the queen started laying, the frames were filled solid with brood: the queen that started on the sixth day was prompt about her business. The moment the cells were vacant she filled them again; combs were built; and, long before any of the others were making a good showing, she had one division full; and then, just as promptly, filled another. In just six weeks her bees had built 16 combs and had them filled with brood and honey-dew. Two months later the colony was strong with about 18 lbs. of stores on hand. I consider her record excellent.

The one that started in seven days, on June 17 was doing finely, so I added above it the frames from another hive where the queen had died. July 2 I found queen-cells in the hive but no queen, so supersedure occurred in about 42 days from the laying of the first egg.

Coming now to the queens that began to lay in the ninth day after introduction, one developed a good colony with lots of stores; but the other showed queen-cells in 25 days from the laying of the first egg.

The queen that started laying on the eleventh day was alive at the end of the season.

The two that began to lay on the twelfth day did fairly well.

One of the queens that started on the thirteenth day died suddenly after filling the frames, as, twenty days later, she was missing, and no queen-cells were in evidence. The other is credited as being in fair condition 34 days after the first egg; but 15 days later the hive was found without brood and with an open queen-cell.

The record of the tenth queen is not perfect. She was seen ten days after introduction, but no eggs were in the frames. Thirty days later she was missing, and cells started.

The twelfth queen of the dozen arrived June 20, and was given to three frames of

brood. She was alive at the end of August.

Of the old queens in my purchase, seven were superseded by the bees; but only one of these was superseded in turn. Four



"A GOOD FIND." BROKEN BRICKS FOR HIVE-STANDS.
See Bee-keeping in the Southwest, last issue.

were superseded in May, from the 3d to the 25th; three in June, from the 2d to the 18th.

Summing up I find that, out of a dozen queens received this summer, one, in evidently poor condition, died in a few days, and five were superseded by the bees in an average of 34 days from the date of arrival. Sometimes I am tempted to lay the blame for the result on the stoppage of nectar for about ten days and the entire absence of a honey-flow, for such conditions must have been exceedingly disheartening to the bees; but, on the other hand, there is an evident relationship between the time of starting to lay and supersede; for the three that started last of all were included in the list of missing. The one that began on the seventh day was also superseded; but her case is complicated by the addition of queenless bees from another hive, so that the evidence here is not direct.

Seemingly the most vigorous queens received the quickest from the seven days' journey; the others may have been injured in the mails.

In keeping scientific records, nothing is considered too trivial for notice; and I am blaming myself for omitting to jot down one point. The eleven queens arrived in two different sizes of cages—the only one that looked poorly being in one of the ordinary small size, and she was the top one at that. I now wish that I had entered on my notebook, opposite each queen, the size of cage she had been received in, for it is possible such a direct comparison might be of value to queen-breeders when filling orders to a customer a week's journey away.

Victoria, B. C., Oct. 1, 1909.

THE CONTROL OF BEE-PASTURAGE.

Has the Bee-keeper a So-called Moral Right to his Territory? Bee-keeping in the Same Class with Many Other Occupations.

BY R. L. TAYLOR.

It seems from articles appearing in the apian journals from time to time that there is a growing uneasiness in certain quarters as to the stability of the business of apiculture on account of the fact, as it is asserted, that the bee-keeper has no legal protection in the exclusive enjoyment of his territory, being in that respect at a disadvantage as compared with those engaged in other kinds of business. So we find the assertion that "if ever bee-keeping is to stand on a firm basis like other lines of business, there must be such a condition of affairs that the bee-keeper shall feel just as secure against interference as the stock-raiser who is assured by the law that his fields shall be occupied by his cattle and by his alone." And this: "No bee-keeper in this land has a legal right to his territory."

It would indeed be a deplorable situation if the law discriminates between the rights

to bee-pasture and the rights to cow-pasture. It would be not only alarming but actually disgraceful if, in the eye of the law, bee-keeping did not "stand upon a firm basis like other lines of business." And it would be alike unfortunate, if it were a fact, that "no bee-keeper in this land has a legal right to his territory"—that is, if he has desired such legal right and has been willing to make the necessary sacrifice to secure that right—a sacrifice similar to that which the dairyman must make in order to secure a legal right to his "cow-pasture."

That we may see more clearly whether the law discriminates unjustly against bee keeping as compared with other kinds of business, let me make use of a few illustrations; and if I should introduce, here and there, some brief arguments on side issues, I trust they may not be found altogether impertinent.

As much dependence has heretofore been placed, in this discussion, on the security the law spreads over the cow-pasture, in order to determine how much reliance can safely be placed upon it, I will take a supposed case in which that pasture largely figures: I collect a small herd of cows and other cattle, and transfer them to a pleasant valley, say in Montana, containing 50 or more square miles of fertile prairie, which, as yet, is all government land. For a few years all is prosperity; my herds increase and begin to try the capacity of the valley. About that time the outside world learns of the beauty and fertility of the land, and begins to crowd in and preempt the territory, starting herds of their own, and press my herds back into inadequate and unprofitable limits. Ought I now to become frantic and proclaim to the world the instability of the basis upon which cow-pasture stands, seeking to arouse the sympathy of the country to the end that the legislature may be invoked to spread the ægis of the law over my cow-pasture? But, unfortunately, I am not a "stock-raiser who is assured by the law that his fields shall be occupied by his cattle and by his alone." Why? Clearly because I have not been willing to make the sacrifice necessary to put myself under the protection of the law.

It may be said that this is not a parallel case because I have no moral right, while the prior bee-keeper *has* a moral right. I freely admit I have no moral right; and as to the average bee-keeper, I am unable to perceive wherein his moral right is any more in evidence than is mine. I make bold to say he *has* no moral right. If my neighbor on the adjoining farm should decide to embark in apiculture, and should start in the business with one hundred colonies I could freely bid him God-speed. For thirty years I have been trying "to learn how many colonies my locality will bear, and I don't know yet." Why, then, should I play dog in the manger? There may be abundance of room for both; and besides, his right, morally and legally, is as good as mine. The most I could do would be to warn him that there might be danger in placing so many colonies in prac-

tically one location that the business might become unprofitable to us both.

But it may be said again that this is not a parallel case because I should have purchased the land I needed for pasture as other stockmen do. This inequality is probably not so great as it appears on first blush; but let us take another illustration:

There are in my little town at least seven shops devoted to the sale of groceries alone, comparatively few of them doing a really satisfactory business; in other words the territory is overstocked. Some of these grocers were on the ground doing business before the others appeared on the scene; but I do not, however, hear any talk of "priority rights" nor of "moral rights," nor of invoking the law to give them exclusive right to territory. Why do I not hear these things? The need is pressing—much more pressing than in the case of the business of bee-keeping.

There is one way in which one or two or more could have secured the exclusive right to sell groceries in this territory, and that is by obligating every owner of land in the district, by making a satisfactory payment, not to allow the sale of groceries on his land, and to bind all subsequent purchasers of the land to the observance of that obligation by the insertion of the requisite stipulation in the deeds of sale.

If you want to secure the exclusive right to the bee-pasturage of a township, for instance, take the course indicated as the proper and effective one in the case of the grocer. There is no other way. Subject to the government's right of "eminent domain," he who has a fee simple in land owns it clear through, from heaven above to hell beneath, and you can not dispossess him of the right to keep bees there without his consent, short of a constitutional revolution.

But in the case of bee-keeping, unlike the case of the grocer, there is, fortunately, no such pressing need of a resort to some new and unheard-of method to relieve the congestion. With the grocer, practically all choice locations are occupied; but with the bee-keepers, the frontiers of the bee-pasture are only touched as yet. There is, therefore, no present cause for alarm. There is no occasion for crowding, and there will be no crowding that is more than temporary, for the good reason that no one prefers the unprofitable to the profitable. Let us thank the blessed sting and the wide pasture, and be content.

To recur to the cows, we may safely say, then, that there is no good reason why "a man who makes his living from bees, or part of his living, should not feel just as secure in his field as the man who makes his livings from cows" except this: The man who keeps cows is generally compelled (or at least is generally willing) to purchase a right to his pasture, while the man who keeps bees thinks he has or ought to have a right to his pasture without giving an equivalent.

"It is not so long since that stockmen undertook to pursue their industry out west on

the plains without securing a legal right to their pasture. They did not always get along as swimmingly as bee-keepers do; but I do not recall that any of them were so lost to reason that they invoked the higher powers to grant them an exclusive right to their territory without expecting to render an equivalent.

Yes, suppose Jones has found a favorable locality and starts an apiary there; and I, thinking the locality not sufficiently stocked, "plant 50 colonies right beside him. Pretty rough on Jones." But that is not a situation peculiar to apiculture, as we have already seen.

Notwithstanding the uneasiness manifested regarding the status of bee-keeping it would be somewhat difficult to make much of a list of those pursuing other occupations who stand in less need of an exclusive right to their territory, either for the production or the sale of their merchandise, than does the bee-keeper; and though there may be some who will be inclined to question the validity of my suggestion that the desirability of an exclusive right to territory for the sale of a product is as important as is the exclusive right to territory for its production, I shall for the present take my position for granted, and make use of one more illustration that may aid in the understanding of the whole matter.

Many years ago I planted several acres of table grapes—the choicest kinds that can be made to succeed here—sufficient to produce all the grapes that my town can be made to absorb profitably. Several others in my neighborhood, seeing my success, and thinking there was good easy money in the business, embarked in it; and, there not being an outlet for the fruit, they overstocked my territory. Then it became a question of the survival of the fittest. Some one had to quit. It was not I.

Not to enlarge upon the theme, must we not conclude that in general, as things now go, the law of the survival of the fittest must govern, and that bee-keeping stands on as firm a basis as other lines of business, even having the advantage in point of stability, and that every bee keeper in this land may have a legal right to his territory if he is willing to pay the price?

Lapeer, Mich., Jan. 28.

THE CONTROL OF BEE TERRITORY.

Should a Bee-keeper have a Legal Right to a Territory? has he Already a Moral Right?

BY R. F. HOLTERMANN.

This subject has been taken up by Dr. Miller, page 41, Jan. 15, and I must confess that I admire his courage. He has tried to defend his ground by propounding some questions. Now, this part of it is very easy; but on greater deliberation, possibly these questions may not stand investigation. Let me say, how-

ever, that, like Dr. Miller, I wish very much that we might control certain territories, although the question of overstocking has never given me any sleepless nights. To compare a cow pasture to a bee pasture seems to me like comparing a man's money in a bank to the fish that swim up and down a navigable stream which is owned by the people (the country), but in which fishing can be carried on without restriction. The money in the bank the man owns in fee simple; the fishing privilege costs him nothing; but, according to the measure of his success, so the danger of others benefiting by his discovery increases. It is now about two years since I pointed out that one is rather partial toward apiculture if he says a territory belongs to a bee-keeper because he first located there with his bees. But if the visits of bees to blossoms are a good thing, and if a large number of bees in a section insures a greater yield of clover seed, alfalfa seed, buckwheat, fruit, etc. (and surely it does one year with another), then more than the interests of the bee-keeper must be considered. Not alone is the quantity of the crop greater, but recent experiments have shown that the seed, owing to cross-fertilization instead of continued inbreeding, is more vigorous; in fact, it is probably no Utopian dream to look forward to a time when seeds will have a higher value on account of the cross-fertilization being assured by reason of the apiaries in the vicinity, resulting in greater vigor and strength of the plants raised from that seed.

We as bee-keepers can not agree on nor give conclusive data concerning what constitutes overstocking; much less are we able to decide on the number of colonies (or, rather, bees, for colonies vary much in strength), which under any condition will be sufficient for a good quantity and quality of seed in a given locality. Now, since this is true, what legislative body, acting judiciously and intelligently, could pass a law on the subject? If any one is bold enough to say that this could be done, then I am sure that the editor and all the readers will gladly give him space to declare himself and to submit his evidence.

I already feel quite sure that the limit of profit to the bee-keeper, when the question of overstocking is concerned, is by no means the limit of advantage to the grower of the crops above mentioned. What I mean is that, when there are too many bees kept in a district for the bee-keeper to secure the maximum amount of honey, it would still, at times, be to the advantage of the crop-growers to have even *more* bees; and, in the framing of a law, surely the crop-growers must be considered.

As I stated before when referring to this subject, we want to have our cake and also eat it. In other words, so far as it suits me I want to lay claims to the blessing that the bees are to the growers of certain crops, and yet to suit my own ends I should have to ignore that phase of the matter in determining this question of overstocking. The grow-

ers should not be allowed to keep more than a certain number of colonies, nor should they be allowed to reach the limit of benefit to their crops. This all proves to me that, difficult as the question is of solution from the bee-keeper's standpoint alone, from the grower's standpoint already indicated it is still more difficult and the moral aspect more complicated.

Now let us turn to the solution of the problem from the standpoint of bee-keepers only. I know of men, situated in excellent localities, who have perhaps ten, twenty, or twenty-five colonies, and who think that no one else should locate within a mile of their yard, or even several miles; in fact, there is a case just now that has come to my knowledge of a man who has only four or five colonies of bees, and who grows fruit and alsike clover. This party was annoyed because a bee-keeper put an apiary near him, although the other farmers about wanted the apiary on account of the fertilizing which the bees would do to the blossoms in the vicinity. This shows that the estimate of any one man as to what constitutes overstocking may be very far from correct.

Another bee-keeper within a half-mile radius purchased at different times over one hundred colonies of bees, and entirely bought out the other bee-men. Some think that this man has man has no right in that locality because he does not live there.

A bee-keeper for six or more years has moved to a given locality to get the benefit from a certain honey-flow. When he first moved in, another man a mile away kept about fifty colonies. This last party produced comb honey entirely, and he also hunted and fished parts of the year, thus making his living. Now, he lost nothing by reason of the first man moving in, for he became quite a large producer of extracted honey, and has gained enough confidence in the business to increase his apiary to over one hundred colonies. He is an honorable man, and yet he thinks that the first bee-keeper who was in the habit of moving his bees in for the particular honey-flow, and who had done so all the other years, should now, owing to changed conditions, move away, and that in not doing so he is not acting the part of a consistent Christian.

One more illustration: A man I know has lived and kept bees near a certain city for over twenty years. About a mile from his last apiary a farmer has gradually increased his bees until he has over one hundred colonies. The farmer, too, has kept bees for nearly twenty years. Last year the first man moved all his bees away, yet retained his bee-house and ground for the apiary. The farmer helped him move, expecting to have the location more to himself. Now a third party, whose duties necessitate his presence in the city every working day, has located one hundred colonies about a mile from the farmer. He probably would not have done this had not the first bee-keeper moved away. Now what would you do, Dr. Miller, in a case of this kind? and what would hap-

pen if the first bee-keeper should bring his bees back so that all three would be located there, together with a number of other colonies in smaller apiaries in the vicinity? I am sure if you heard of all the complications that would develop in the history of this instance you would be obliged to scratch your head and say, "I don't know."

To me this is merely one of many other big questions which will not be set right until He will rule whose right it is to rule, and who will have the power and the wisdom to decide these matters justly. Bee-keeping is not the only business in which there are problems of this kind. Laws have been framed in the effort to solve some of them, but they have been dismal failures.

Brantford, Ontario, Can.

OF WHAT DOES A BEE-KEEPER'S TERRITORY CONSIST?

BY WM. M. WHITNEY.

My apology for this intrusion is the fear that our esteemed Dr. Miller misapprehends, in a measure, my meaning respecting a matter about which he and I entertain a difference of opinion. On page 41 he says: "There are some good men too, like W. M. Whitney, who think that any man has a right to plant an apiary wherever he can get enough square rods of ground for its occupation, without any regard to surrounding bee-keepers." The doctor (for his purpose) puts the matter very ingeniously in the above statement.

Now, I wish to make myself clearly understood, without going into a lengthy discussion of the question of prior rights of individuals to territory. I am very sorry that there are even a few "good men too" like Dr. Miller who think some men have the right to plant an apiary wherever they can get enough square rods of ground for its occupation, without any regard to the rights of the surrounding owners of the broad acres which produce the flowers from which the nectar is obtained.

The doctor says: "Just keep this in mind: *No bee-keeper in this land has a legal right to his bee territory. The fact is, he has no bee territory excepting the ground his bee-hives stand on.*" You know laws are so unconstitutional lately that I'm at a loss to know how an act could be framed that would go through the courts without being made hash of. Perhaps the doctor does. What I claim is, that an apiarist has no moral right (and I'm quite sure he'll never acquire a legal one) to the exclusive use of territory. An apiarist has no more moral right to the control of the surrounding territory for the production of honey than has the man who starts a strawberry-patch from which he hopes to supply his neighbors with strawberries. Now, honestly, has he? Both are working for the same end—a living.

If the doctor and I could join forces and get up some scheme that would work, say, to control the territory each way from our

apiary the distance a bee is estimated to forage for supplies, i. e., about 2½ miles, giving us a diameter of 5 miles; or, in other words, a territory 15 miles in circumference, we would have a cinch. Not only would we control all the blossoms within our boundary, but all the swarms of bees that come through the air and clustered therein would be ours, for no one else would have the right to hive them. We might paraphrase the lines of Robinson Crusoe thus:

We are monarchs of all we survey,
Our right there is none to deny;
From our apiary, for miles away,
We are lords of the earth and the sky.

"But," says one, peering over my shoulder as I write, "hold on a little bit; don't get excited over this matter. It may not be so big a thing as you think, after all. Aren't you afraid that you are planning a monopoly in restraint of trade? And won't you become liable to prosecution for violation of the anti-trust law?" Hadn't thought of that. Just think of two such fellows as the doctor and myself and "good men too" getting into such a mixup as that! The smile on the doctor's face, "and one that never comes off," might get him out of the dilemma; but I'd have to go to jail sure. I'd go a long way to accommodate you, doctor; but the more I think about this matter the more I feel like shying at the whole thing. Please consider me out.

Batavia, Ill.

FOUL BROOD AND DIVISIBLE-BROOD-CHAMBER HIVES.

Can the Disease be Treated in Such Hives without Handling Frames? the Baldridge Plan.

BY J. E. HAND.

Mr. Editor:—I have had it in mind for some time to call your attention to a particular point in an editorial in GLEANINGS, July 1, 1909, page 389, on how to select a hive; but the state of my health would not permit until now. It is so seldom that one finds any thing to criticise in your excellent editorials that I deem it a luxury that I feel sure your generosity will not allow you to forbid.

From your standpoint (that of the supply-dealer) I agree with you that it would not be good policy for you to recommend any particular hive or frame to every one, for some might misconstrue your motive, even to accusing you wrongfully of mercenary motives.

In the editorial mentioned, you set forth in a fair and impartial manner the good points of the different hives, and then calmly and deliberately proceed to annihilate the sectional hive in a most complete manner. Your statement that if foul brood were likely to break out in an apiary the sectional-hive proposition would be a fright, for it is not one that will permit of the handling of all its frames with economy of labor, is equivalent to saying that it is necessary to handle all the frames in a hive in order to treat successfully foul brood, which is far from the

truth; indeed, I regard the methods that require the handling of frames in the treatment of contagious brood diseases as unscientific, bungling, and not at all in keeping with modern methods of apiculture. The infection is carried in the honey; and if a diseased colony is disturbed, as in shaking, brushing, or handling frames the bees will fill their sacs with diseased honey which is carried into the new hive, often necessitating a second treatment, and *always* necessitating the building of new combs without any help from foundation, which seals the fate of that colony so far as the hopes of a crop of surplus honey are concerned.

I regard the Baldridge method* as the most scientific, economical, and practical scheme that has ever been made public for the successful treatment of foul brood. By this method the bees have the diseased hive in a normal condition, with empty sacs, in search of nectar, and return to the clean hive with their sacs filled with nectar fresh from the flowers with all their healing influences; and if a stray bee happens to get into the wrong hive she carries no infection.

This method not only precludes the necessity of handling frames to any extent, but it also precludes the necessity of compelling the bees to build new combs right from the stump, as it is safe to use full sheets of foundation or clean healthy combs, which insure a crop of honey if we tier up the hives to be treated so as to get a strong force of bees in the clean hive. This is the method practiced with sectional hives. I ask you, Mr. Editor, which is the more scientific as well as economical method. No, economy of labor is not to be found in the handling of frames under *any* circumstances.

I call your attention to this matter partly because I feel sure you did not take the time to give the matter due consideration, and partly because your error might influence some bee-keeper who contemplates adopting this excellent hive to reject the most scientific method of treating foul brood, as well as the one hive above all others in which economical manipulation is carried to perfection.

Birmingham, Ohio.

[The editor considers himself by no means infallible; and when a correspondent thinks that any of our editorial utterances are misleading we hope he will be free to come back and say so; and he can have all the space he wishes for his reply. When an able correspondent like Mr. Hand says he seldom finds any thing to criticise in our editorials we feel complimented indeed. Perhaps not all our readers will agree with him.

Referring to the editorial in our issue for June 1, page 389 last year, perhaps the reader will understand Mr. Hand's point of view better if we introduce right here the sentence or sentences to which exception is taken. Here they are:

If, on the other hand one has had considerable experience in keeping bees, and wishes to manage a se-

ries of outyards for the production of either comb or extracted honey, with a minimum of labor, he possibly would do well to adopt the divisible-brood-chamber hive. It is true it would cost some more for the same comb surface, yet in the hands of the skilled bee-keeper it will produce some excellent results. But if foul or black brood, or any other brood disease, happens to be in the locality we would never think of adopting such a hive; for if one is likely to get one of these diseases in his apiary, the divisible-brood chamber proposition would be a fright, for it is not one that will permit of the handling of all its frames with economy of labor.

We will explain by saying that we had in mind not so much the trouble of *treating* a colony that had foul brood as being able to *locate* the disease in the first place in any particular hive at its very incipency. We do not know how this can be accomplished if foul brood is *known* to be in a yard (that is, has broken out in some hives) without going over *every inch of comb surface* in every hive at least once in ten days. Years ago, when we had foul brood in our home yard, we found it necessary to keep one man employed under a wire cloth cage examining brood. Whenever he found any bad cells he removed the comb, for our plan was to catch the disease at its very start, to prevent contamination of other hives near by. We do not know of any way by which the actual presence of foul brood in a divisible brood-chamber hive can be definitely determined except by examining every comb. Ordinarily speaking there will be twice as many combs in such a hive to look over and handle as there would be in a hive of ordinary standard dimensions of full-depth frames.

As to the Baldridge method of treatment, this has the merit of saving all the brood that is good, and leaving the work of melting up the combs at some convenient time, when the apiarist can take care of them to the best advantage. It would not, in our judgment, however, be a wise procedure for a beginner or an unskilled person. For that reason we believe that the ordinary McEvoy treatment is better, because the source of the infection is immediately removed. When there is fresh honey in the combs they should not be shaken but brushed. At this point our correspondent would probably take issue with us by saying that brushing and shaking increase the probability of infection; and that it would be better to follow the Baldridge treatment that does not involve any brushing or shaking. Right here there is a chance for an honest difference of opinion. —ED.]

A HISTORY OF THE BASSWOODS.

American, European, and Other Species.

BY J. E. CRANE.

On p. 442, July, last year, is a letter from W. J. Green calling attention to the difference in time of bloom in the European and American basswoods, followed by A. I. Root's reply. Having waited for nearly six months for some one to reply, and not seeing any thing on the subject, I "take my pen in hand" to see if I can throw any light

* See GLEANINGS for Aug. 15, page 488.



AMERICAN BASSWOOD, OR LINDEN.

on the subject. As the linden is one of the greatest honey-producing plants in our northern States it is important to know all we can about this interesting family. The more is this true as the time has come when we must begin to raise timber to supply the ever-increasing demand for lumber; and basswood is one of the most rapid-growing

deciduous trees that produce good soft lumber.

There are recognized by botanists some twelve distinct species of basswood, or linden. Three of these are native to the United States, six to Europe and Western Asia, and three to Eastern Asia. Several of these species are known under a common name,

and other species of them under several names, and several running into varieties, so that the nomenclature has become very uncomfortably mixed, and we are not at all sure by the name given to what species it belongs. Nurserymen do not appear to be as particular as they should in giving the correct botanical name of plants they propagate.

Now let us see if we can bring order out of confusion. Let us first take our American lindens cut up into three species:

1. *Tilia Americana* (also known as *Tilia Caroliniana*, *American linden*, or *basswood*, which is too well known to need full description. It should be mentioned, however, that it is quite variable in its habit, size, shape of leaves, color of bark, and also time of bloom. Two varieties of this species are known as *Tilia macrophylla*, a large-leaved variety, and *Tilia mottlei*, a very large-leaved strong-growing form that originated in cultivation in Europe. This species is found through the northern States from Maine to Minnesota.

2. *Tilia heterophylla* (also known as *Tilia alba*). This tree attains a height of 70 feet; has large leaves from five to eight inches long, smooth and shining above, whitish and tomentose beneath, with fruit globular, not ribbed; blossoms in July. Its home is in the Alleghenies and westward. This species has been sent out as *Tilia macrophylla*, thus confounding it with *Tilia Americana*.

3. *Tilia pubescens* (also known as *Tilia Americana*, var. *pubescens*), as it is similar to *Tilia Americana*; but it is a smaller tree with its winter buds, finely pubescent leaves smaller, obliquely truncate at the base; glabrous above, pubescent beneath; floral bract rounded at the base, fruit globose. This species is found from Long Island to Florida, and west to Texas. It is less ornamental than the other native species, and is rarely found in cultivation.

EUROPEAN SPECIES.

1. *Tilia petiolaris*, also known as *Tilia Americana*, var. *pendula*; in horticulture as *Tilia argentea*, var. *pendula* and *Tilia alba*, var. *pendula*; also as *Tilia pendula*.

SILVER LINDEN AND WEeping LINDEN.

This is a medium-sized species with slender, somewhat pendulous branches; leaves pale green above; silvery, and finely tomentose underneath; 3 to 5 inches long; petiole slender, as long as the blade; blooms in July; from eastern Europe; said to be one of the best of the European kinds.

2. *Tilia tomentosa*, also known as *Tilia argentea*, *Tilia alba*, *Tilia alba*, var. *Spectabilis*, also *Tilia alba pyramidalis*, white or silver linden, and is the larger white or silver linden of Europe, growing some 40 feet high, having a rather dense pyramidal head, leaves suborbicular, 3 to 5 inches across, unequally cordate, serrate, densely white tomentose beneath, with blade from 2 to 4 times as long as petiole; fruit slightly ribbed and tomentose. Time of bloom very variable. This species is from eastern Europe, is quite dis-

tinged, and is known as the white lime of Europe, and is doubtless the same kind mentioned by A. 1. Root on page 442.

3. *Tilia platyphylus*, sometimes known as *Tilia grandifolia*. This is the broad-leaved linden of European plantations, and supposed to be the largest, reaching 90 feet in height. Leaves are large, green, pubescent often on the upper side to some extent, unequally cordate, petioles and veins hairy; fruit 5 rarely 4 angled, tomentose, and thick-shelled. This species is often sold in this country as *Tilia Europæ*. This species is very variable, producing several well defined varieties—*rubra*, with bark of branches very red; *pyramidalis*, an upright grower with reddish shoots; *aurea* or *sulphurea*, with yellow bark or branches; *laciniata* or *laciniata rubra* with deeply cut leaves and reddish young bark; also *vitifolia*, vine-leaved.

To us the most interesting thing about this species is that it blossoms some two or three weeks before our American species, and is the earliest to blossom of any species of linden so far as I am able to learn.

4. *Tilia vulgaris*, also known as *Tilia Europea*. This species grows nearly as large as *Tilia platyphylus*; has large unequal or oblique cordate leaves; smooth and green on both sides; tufts of hairs in axils of veins whitish; fruit globose or oval, tomentose; shell thick, and blossoms a week or ten days before our *Tilia Americana*. This is said to be the celebrated species of Berlin, and is often sold in this country as *Tilia Europea*.

5. *Tilia ulmifolia*, also known as *Tilia cordate*, *Tilia parvifolia*, *Tilia Sibirica*, *Tilia Europea*, and *Tilia microphylla*. It is of slower growth, and usually a smaller tree than *Tilia platyphylus*; leaves small, thin, cordate, green above, silvery beneath, with tufts of rusty hairs in the axils of the veins; fruit globose, sometimes slightly ribbed, and very thin-shelled. It is of special interest to us from the fact that it is very late in flowering—probably ten days or two weeks later than our American species.

6. *Tilia dasystyla*, or *Crimean linden*, is described as leaves tough and leathery, dark glassy green above, pale beneath, with tufts of brown hairs in the axils of the principal veins; bark of young branches bright green; leaves often obliquely truncate at the base; native of Eastern Europe and Western Asia.

ASIATIC SPECIES.

1. *Tilia Mongolica* is described as a slender tree with very small orbicular or ovate leaves, truncate at the base, usually three-lobed, cuspidate, coarsely serrate, with acuminate teeth, glaucous beneath, or green, on vigorous shoots; lyme rather dense, with stalk naked at the base—native of Eastern Asia.

2. *Tilia Mandshuria*—a tree attaining 50 feet, with spreading (often somewhat pendulous) branches, leaves large, from 5 to 8 inches long; orbicular to broadly ovate; cordate or truncate at the base; rather coarsely serrate with spreading teeth, floral bract almost adnate nearly to the base of the peduncle; fruit globose, thick-shelled; five furrows

with a slight cavity at the insertion of the pedicel. A variety has leaves edged with yellow or a lighter green, from Eastern Asia.

3. *Tilia Niqueliona*—a native of Japan, attaining a height of 100 feet with usually an oblong head; leaves ovate, truncate, or slightly cordate at the base, gradually acuminate, rather coarsely serrate, with incurved teeth 4 to 6 inches long; floral bract adnate almost to the base of the peduncle; fruit globose, thick-shelled, five-ribbed only at the base; time of bloom not given.

Now, what of all this, or of what value to the bee-keeper? Let us see. We find that our *Tilia Americana* varies in the time of its bloom—I think fully ten days, for I find trees near together, one commencing to bloom many days before the other. If the weather is not too hot a tree will continue, after commencing to bloom, for two weeks, thus giving us about three weeks of bloom. It is probable that trees in forests or on high hills will lengthen the season. If we can find some other species that will bloom a week or ten days later, as Mr. Green and A. I. Root have told us on p. 442, we may add ten days to the length of the season. And, again, if we have or can find some species that will bloom ten days earlier than our American species we are doubling the season of bloom. I have shown in the above account of European species that there are at least two that are earlier by far than our American species. But isn't there some mistake about that? Can it be that Europe can furnish species that will bloom so much earlier and later than our own? It certainly is so, for we have a European species on our college grounds right here in this town that blooms from ten to twenty days earlier than our native basswood, as I have watched it for the past thirty years or more.

There have undoubtedly been large numbers of European linden set out in and near our large cities; and will not near-by bee-keepers watch the difference in the time of bloom, if any are observed blooming either earlier or later than native trees, and report, sending specimens of leaves and blossoms and fruit to State experiment stations for correct botanical name?

This is a work our experiment stations should take up, and find out the most desirable species to plant for timber as well as for the bee-keeper, that those who plant trees may do so wisely and to the largest economic value of the country. Can not our bee-keeping friends across the great water tell us more of the time of bloom, and value of the European species?

Middlebury, Vt.

CELLAR AND OUTDOOR WINTERING.

A High Temperature Now will Mean that Brood-rearing will Start too Soon.

BY J. E. HAND.

Packed in one end of our house cellar, four and five deep, are 105 colonies which were put in Dec. 5. In the center of the end

occupied by the bees is a window 14×28, opening underneath another building, the foundation walls of which are well ventilated. Said window has not been closed since the bees were put in. The temperature has ranged between 45 and 50°, mostly the latter. The cellar is apparently as dry as an upper room; and, notwithstanding it is entered every day, and sometimes oftener, the bees are very quiet indeed, and, to all appearances, are wintering perfectly. The hives are pushed forward on the bottom-board so as to give two openings at the bottom, and the tops are covered with a piece of carpet or heavy cloth. The high temperature will undoubtedly induce early breeding, which is not desirable, and from now on we will reduce the temperature by leaving the outside door open every night, when the temperature is below freezing. We find that a high temperature and a dry cellar with a pure sweet atmosphere is a safe place in which to winter bees.

We always winter our strongest colonies out of doors, believing that a bee-keeper who would do credit to his chosen profession should be able to winter his bees successfully either way as well as to produce either comb or extracted honey at a profit.

Our outdoor colonies are for the most part in winter cases surrounded by two inches of sawdust on the sides and five inches on top. Some have sealed covers, and all have three thicknesses of carpet or heavy cloth, either laid upon a honey-board or upon the sealed cover, hanging down over the side of the hive, after which the sawdust is poured in and worked down around the hive, and the five-inch tray rounded up full. When a seven-inch waterproof cap telescopes over the winter case, the entrance is $\frac{3}{8}$ ×3 inches.

Our bees are, for the most part, in sectional hives; and past experience has taught us that we have little cause for anxiety for their welfare.

We have been equally successful with the following method of outdoor wintering: Lay several thicknesses of old carpet or burlap sacks upon the hives, letting them come down well over the sides. Over this lay several thicknesses of newspaper, and over the whole push down an 11-inch waterproof telescope cap. For the latitude of Northern Ohio, all three of these methods seem to be equally successful; however, the latter one appeals to us on account of its simplicity of equipment and economy of manipulation.

A word about the much-mooted question of moisture-soaked absorbents. I don't know what causes it at Medina, but I do know we don't have it up here in the lake regions, notwithstanding the moist atmosphere. I suspect three thicknesses of carpet has something to do with it.

Birmingham, Ohio.

[We have no moisture in the absorbents over a sealed cover; i. e., a super cover sealed down with propolis so that no dampness can escape into the packing above. From your general description it would appear that you are using sealed covers, or

what practically amounts to that. Your sawdust packing, when pressed down *tight*, in effect shuts off all upward escape of warm air, and, of course, no moisture can escape. If the packing were loose and porous like chaff, moisture would rise and lodge in the packing.—ED.]

EXTRACTING ALL THE HONEY FROM OUTYARDS AT ONE PLACE.

Hauling Extracting-supers in a Covered Wagon.

BY V. V. DEXTER.

We need all the information about black brood that we can get out here in Washington. One of our largest bee-keepers has either pickled or black brood all through his apiaries. I have read of no one using the same methods in extracting that I do; and possibly by telling my ways some one may gain new ideas. I live in town, and have about 500 colonies in 7 apiaries, placed all the way from 4 to 15 miles from home, and have about two extracting-supers, Langstroth depth, for each hive.

I do my extracting at home, hauling the honey there in a canvas covered spring wagon painted white. It is bee-tight, and has a small screened window with bee escapes on each side. The door is in the back end. The wagon will carry about 2000 lbs., or 50 supers; but this is hardly enough, and some day I am going to have a larger wagon, provided foul brood does not get the better of me.

My extracting-house is 20 feet square, and has a cement floor. Across one end is a platform about 8 feet wide, one end of which is partitioned off for a warming room, the floor having openings in it to admit heat from a stove underneath. On the end of the platform opposite the warming-room is the extractor, and next season I expect to have an engine near the extractor; but down on the cement floor stands a 2000-lb. tank into which the honey runs from the extractor. After the specks of comb have risen to the surface the honey is run into cans which are placed in a hole in the floor under the faucet.

There is a door opening outdoors from the platform, through which the full combs are unloaded and carried into the warming-room. The threshold of the door is on a level with the platform, and also about on a level with the floor of the wagon-box, which makes unloading more convenient.

This year I melted my cappings as they fell from the capping knife; but I do not like that way, as it is very uncomfortable working over a hot stove on a warm day, and we do have some very warm ones here. Next year I shall uncap into a large dishpan and then empty the cappings into the capping-melter in another part of the room. I would leave them to be melted later, but it is not nice to have a lot of cappings lying around.

The past year has been practically a failure here so far as bees are concerned. The

farmers are plowing up the alfalfa, our principal honey-plant, and putting in fruit, from which the bees gather almost no honey, as our springs are usually cold and windy.

North Yakima, Wash., Jan. 15.

[A number are finding it more convenient to uncap into a separate can, which may be emptied, as often as full, into the melter. Others confine the heat of the melter by wrapping several layers of asbestos paper around it so that the heat radiated is not objectionable.—ED.]

MORE ABOUT COTTON AS A HONEY-PLANT.

BY J. D. YANCEY.

As to the quality of cotton honey, I can say from my own experience that it varies in color from light amber to almost water-white. While I do not consider it the equal of white-clover honey in flavor, it is superior to basswood. My experience with it dates back some 14 years to Hunt Co., Northern Texas, where it was our main dependence for a honey crop. The bees worked upon it continuously, more or less (depending on whether the weather was favorable to the secretion of nectar) from early in the blooming season until long after the first frosts. As mentioned by D. P. Hunt, page 21, Jan. 1, the flow increases toward the last of the season; and if we can get two weeks of nice weather after the first frosts it generally amounts to a considerable increase in our crop.

I distinctly remember a season when we secured a considerable extracting after we had given up all hopes of a crop, and the bees went a distance of three to four miles to the river bottoms, where the cotton had not been injured by the severely dry weather as it had on the prairies around us. The honey, however, from cotton growing on heavy bottom land is not so light-colored nor as finely flavored as that gathered on the lighter and dryer soils of the uplands—at least such has been my experience.

Besides the nectar-glands mentioned by Mr. Hunt, there is on the under side of the leaf, on the center rib, a small gland that at times secretes a considerable amount of nectar. This gland seems to be the most active about the time the leaf reaches full maturity. When atmospheric conditions are just right, such large drops of nectar will collect on these leaf-glands that one may readily taste it; and a bee has to visit only a very few to obtain a load. At such times they neglect the blossoms entirely, and the honey comes in with a considerable rush. I could not tell that this honey was any different in either color or flavor from that gathered from the blossoms.

In a ten-year residence in Southern Texas I have never noticed bees work on cotton as they did in the northern part of the State.

Bridgeport, Wash.

HEADS OF GRAIN FROM DIFFERENT FIELDS

FLORIDA HONEY THAT FOAMS WHEN PUT IN A WARM ROOM.

What can be done with honey that becomes foamy or braded like when placed in a warm atmosphere? What I have in mind is honey from tupelo and snow-vine. My theory of the cause of this is that the acid from each is such that it will not do to put the two together; and the only remedy I know of is the mixing of a proper proportion of orange honey.

Washington, Pa., Dec. 20.

H. E. DILLE.

[As the questions here asked refer to Florida honeys that foam they were referred to Mr. O. O. Poppleton, who is an acknowledged authority on Florida honey and Florida bee-keeping. His reply will be read with interest.—ED.]

Mr. Root.—Yours of Jan. 22, inclosing a letter from Mr. Dille, has only just reached me, owing to my being on an inspection trip to my bees down on Key Largo, away from mail communication.

I have had only a limited experience with foamy honey, and most of that was unsatisfactory. I had half a barrel of such honey in Iowa, and that cured itself by being allowed to candy solid. I then skimmed off the liquid honey that remained on top of that which was candied, and all the rest. The portion which had candied very hard and solid was first class. It appeared as though the thin foamy part of the honey would not candy. The poor part of the honey, that which remained liquid, was only a small part of the whole—less than a twentieth. If this particular lot of honey Mr. Dille refers to is in the North, where it will candy solid, I would suggest that he try allowing it to do so in a suitably shaped vessel that will allow it to be properly skimmed after being candied solid except the top; then by the usual process reduce the candied part of the honey to its original liquid condition. It is a question with me whether, in this particular instance I refer to, the real curative agent was the candying or the after-reliquefying by heat; but I suspect it needed both.

Honey kept in a southern climate does not candy solid enough to use the above process, and I have had only the one experience referred to in the North; and all bee-keepers know how apt single experiences are to lead one to wrong conclusions; so what I have written is only a suggestion which may call out something much more valuable.

In addition to the above I would say that I do not think Mr. Dille's theory of the cause of the foaming is correct. Mixing two kinds of honey would cause no trouble unless one of them was of bad quality. I have seen some honey that was full of air-bubbles under the caps, and such honey is sure to foam after extracting. It seems almost impossible for the bees to cure some kinds of honey properly, but they will seal it up all the same.

Stuart, Fla., Feb. 5.

O. O. POPPLETON.

A NEW WAY OF USING THE CAPPING-MELTER.

I have used a capping-melter the past season, and I think it is one of the best things that have been put out of late. I injured the honey the first time by having too much heat; but afterward I used just enough heat so that the wax would not cool in the end of the spout and clog, and the honey so obtained is improved. I let the cappings fall from the knife into a tub and drain a short time, and then dip them into the melter as needed. The cappings are all melted by the time the honey can be drawn from the extractor. I have two reasons for allowing the cappings to drain before putting them in the melter. I have two uncappers part of the time, and the capping-melter is hardly big enough for both of them. A large galvanized tub with a quarter-inch-mesh strainer allows two-thirds of the honey to drain out in a few minutes so that there is not so much to heat, and quicker work can be done. Then I turn the heat down so that the wax will cool and harden in the outer end of the spout, then increase it slowly until it runs freely. By this process no harm is done to the honey.

Vesper, Wis.

A. B. WHITE.

TWENTY YEARS' EXPERIENCE SHOWS THAT BEE-STINGS DO NOT CURE RHEUMATISM.

Dr. A. F. Bonney, p. 784, Dec. 15, is right in his opinion of bee-stings as a cure for rheumatism. Those having old volumes of GLEANINGS will, by referring

to p. 994, Dec. 15, 1889, see that I was enthusiastic in an article hailing the bee-sting remedy. Now, after twenty years of experience with rheumatic pains and bee-stings as a side-issue, I have come to the same conclusions as has Dr. Bonney. Take one hundred persons who have had rheumatism and been cured, you will find that scarcely any two of them used the same remedy. The fact is, very few of them ever experienced rheumatism to the degree that I have and are now cured. Sometimes the terrible malady will apparently leave its victim; but in an old chronic case like my own there is no cure known or guaranteed except through quackdom.

THE MILLER CAGE DESCRIBED YEARS AGO.

IN GLEANINGS, p. 769, Oct. 1, 1889, there is a cut of a cage that I devised to introduce laying queens on the candy plan, and an article describing my method of using it. The Miller introducing-cage now used almost universally is identical with my device in every detail, except that the Miller cage is flattened and will go between the brood-combs without spreading them, and the queen is released without further molestation, which is an important factor in introducing queens successfully.

Shickshinny, Pa.

S. W. TAYLOR.

ARE EXCLUDERS HONEY-EXCLUDERS?

In my opinion excluders are honey-excluders to a certain extent. The excluder is a tight fit for a honey-laden bee. Just take it home to yourselves—if you had a pack on your back, and had two doors you could go through, wouldn't you choose the larger one? If the flow is light I can imagine them saying, "Oh, well! I don't want to get any honey to-day. There isn't much honey, anyway, and I hurt myself so much pushing and shoving through those bars." To prove this, I will say that the bees do not carry honey below half so much when the excluder is on, and I presume it is for the same reason that they do not carry it above quite so willingly as though the excluder were off. The hive that has an excluder on always has more honey in the brood-chamber, and less brood than the one that hasn't one. And then they say the excluder queen was not so prolific as the other. Strange that it should be this way 80 times out of 100 at least.

As to distance making a difference in the amount of honey gathered (see page 22), I should say it does. When the distance is close they make more trips during the day, and it stands to reason that if they have to go a mile they can't gather honey as fast as if they had to go only a yard. As well ask, does a high wind have a bearing on the amount of honey gathered? Are they not both a hindrance? Their water also should be close at hand so that they won't have to waste more time than is absolutely necessary.

MRS. M. E. PRUITT.

Ranch Vigo, Eola, Tex., Jan. 7.

[There has been some discussion on this question, pro and con; but some of our best bee-keepers—those who produce honey by the carload—make the unqualified assertion that excluders do not in any way interfere with the amount of honey stored above. While they do exclude pollen to some extent, this very exclusion is something that is desired, for it is better to keep pollen out of the surplus honey.—ED.]

HOW FAR DO BEES FLY?

Myself and neighbor own the only Italian bees in the county, and it is seven miles in an air line to Hamburg. Last spring I transferred eight colonies for Mr. C. L. Baker, of that place. I commenced about 9 o'clock, and by 10 o'clock I noticed 5 or 6 Italians there attempting to rob. By 3 P.M. it looked as if I could have hived a pretty good swarm of them. The next day there were more of them. Now, where did they come from? Hamburg, Ark., Dec. 16.

W. D. JOHNSON.

[It is our opinion that your own Italians did not fly seven miles. While we have known bees to go that distance over a body of water, it is very doubtful whether they would go as far as that unless it were over a valley from one hill to another; and even then the maximum distance, we should say, would be five miles. The reports that have come in during the past few months have indicated pretty conclusively that, as a rule, bees do not fly over an average range of much more than a mile and a half; and apparently most of the honey is gathered within a radius of one mile from the yard. While there are exceptions, of course, yet these exceptions only prove the rule. If you will look a little carefully and make some inquiry you will find, in all probability, that there are some Italian bees in the locality not far from where you did the transfer-

ring. If you had taken pains to "line them up" we think you would have found they were not going to a place seven miles away, but to some point near at hand.—ED.]

WHAT IS THE YELLOW DUST UNDER THE BROOD-COMBS? THE PROPER SPACE UNDER THE BOTTOM-BARS IN WINTER.

1. What is the yellow dust to be seen on the bottom-board of the hive during the winter months—sometimes considerable? I have seen something like it during the summer when bees gnaw combs. Are colonies in good condition when considerable of that dust appears?

2. Will the bees clean up dusty sections that have starters in them? The reason I ask this is because at times this is a dusty country, and otherwise I could not save any sections by the superful left over from a previous year and which have been drawn out considerably at times.

3. For colonies wintered outdoors, is it advisable to have much space below the frames and above the bottom-board during the winter, considering them to have, of course, the entrance contracted to $\frac{3}{4}$ x 6?
Chadron, Neb., Feb. 1. LEE CARD.

[1. We do not know that we are able to give a really positive answer to this question. The yellow dust may be particles of propolis and the leavings of pollen which the bees do not use, or a sort of pollen mold or dirt. Any dust or litter that comes in contact with bees will generally become more or less soiled, and take on a yellow color. The suggestion has been made that bees use only the pollen that has been mixed with honey. If the combs are well supplied, the presumption is that all the pollen in the form of dust that brushes off from bees that come into the hive is neglected or not used. If so, it may be and probably is taken at other times when there is a scarcity of nitrogenous food in the hive.

Yellow dust on the bottom-board of hives that accumulates during the winter months is no different from that which accumulates at other times of the year, probably. In any event, its presence does not signify that there is anything wrong with a colony. There will nearly always be such leavings with any good strong stock.

2. A good rousing swarm, when it enters its new quarters, will do a good job of housecleaning; but if dusty sections be placed on a hive during a big honey-flow the probabilities are that the bees would not stop to clean them up. They might do so if they had plenty of time. It would, therefore, be advisable to have all sections as clean as possible.

3. In either indoor or outdoor wintering it is advisable to have as much space under the frames as possible for the accumulation of dead bees. Their carcasses will often close up the space between the bottom of the frames and the bottom-board; and during the latter part of winter and early spring the accumulation will very often clog up the entrance. A closed entrance usually means death to the colony. The greater the space between the bottoms of the frames and the bottom-board, the less liability of clogging the passage-way to the entrance. Generally it is not practicable to have a deeper space under the frames than $\frac{3}{4}$ inch in the average hive. The modern hives turned out by most manufacturers now have reversible bottom-boards having a $\frac{3}{4}$ space on one side and $\frac{3}{8}$ on the other. With such boards one can give additional space. The entrance should, of course, be $\frac{3}{4}$ x 6 inches, or preferably $\frac{1}{2}$ x 6 or 8 inches; but with such a narrow slot it is very important to see that the dead bees are raked out occasionally, especially toward spring.—ED.]

WHY DID THE BEES UNCAP THE HONEY?

I don't understand my bees this fall. They seem to have uncapped a quantity of honey. Not long ago they seemed to have enough for the winter all capped, but when I looked at them a fortnight or so after, they had uncapped nearly all of it. There seemed to be a good deal of honey; but very little of it was capped.

MISS MARGARET V. HAMILTON.

Aurora, Ind., Dec. 17.

[We are unable to explain why your bees should, within a period of a few days, uncap nearly all their honey. The only suggestion that we can offer is that robbers from without made an onslaught on this hive; but if that had occurred, you or your neighbors would have had knowledge of it, and the robbed colony would have been deprived of all its stores.

Can any of our readers offer any satisfactory explanation?—ED.]

WHAT IS THE LEAF-CUTTER BEE?

Will you please tell me what the leaf-cutter bee is? I have never observed it.

Bradshaw, Neb.

C. B. PALMER.

[This was referred to Prof. H. A. Surface, who says:]

The editor has forwarded me the letter and specimens. I find upon examination that these are the nests of the leaf-cutter bee, belonging to the genus *Megachila*. The larvæ, or young, are contained therein. This bee makes its nest by cutting round pieces out of leaves and pasting them together, as you have observed. Such are the facts in the case. As to how this comes to be so, there is some speculation and the rest is guesswork. However, it is my idea that the parent leaf-cutter made her nest inside the bee-hive, and the honey-bees left this without notice for a while, perhaps because they were very busy with the nectar-flow; but when they realized the presence of an intruder they cast it out and you found it in the entrance. There may be some other explanation for its presence there, and I suppose that another person's guess might be as good as mine in this regard.

H. A. SURFACE,
Economic Zoologist.

Harrisburg, Pa., Sept. 22.

FEEDING ARTIFICIAL POLLEN INSIDE THE HIVE.

I have been reading the article by F. Dundas Todd, p. 53, Jan. 15, and will offer my plan of feeding pollen. I take a piece of canvas (8 or 10 oz. duck), one inch short of length and depth of frame used in the hive. I tack a $\frac{1}{8}$ strip on each side of the top edge to act as a top-bar, so that the canvas may hang on the rabbets like a frame. Then I paint each side of the canvas with hot extracted honey and hang it in a very warm place until the cloth appears quite gummy. Finally I coat a large plate very thinly with honey, spread on the flour, and mix well. Care should be taken not to have it sticky. I find a putty-knife is a fine thing with which to mix it, then spread the mixture on each side of the canvas. One of these frames hung in a pollen-famine colony will help wonderfully.

Three Rivers, Mich.

WM. Z. RUGGLES.

DYSENTERY STAINS WITHIN THE HIVES.

Did you ever know your bees to smear their hives all over inside of the hives? I have two that did today, and yet they did not fly much. What would you do with them? Those I fed on sugar are all nice and bright as they were in the fall. The two in question have all honey-dew.

ROBERT INGRAM.

Sycamore, Pa., Jan. 20.

[When a colony has dysentery so badly that it stains the inside of the hive it is usually past recovery unless settled warm weather comes on almost immediately. We are not surprised that there should be so great a difference in the condition of colonies fed on sugar syrup and those having only honey-dew. Reports have shown this before.—ED.]

GETTING RID OF RATS WITH SULPHUR.

I moved to my present home two years ago, and found the place alive with rats. They were in the barn, house, out-houses, woodpile—in fact, everywhere that a rat could hide. Last year in putting up my corn I sprinkled sulphur in it as I put it in the crib; also on hay, oats, etc., and now there is not a rat on my place. Some of my neighbors have tried sulphur, and they have no rats. I use about one pound of sulphur to 100 bushels of corn. I sprinkled it around well next to the wall. I believe that rats can be driven entirely away by the use of sulphur.

Brookston, Texas.

J. R. SCOTT.

[Has any one else had any experience in the use of sulphur in getting rid of rats as here described?—ED.]

HONEY THE SAME PRICE TWENTY YEARS AGO.

It is rather poor encouragement for bee-keepers when honey is 12 to 16 cts. a pound, just as it was 23 years ago. All other things are double in price.

WILLIAM IRR.

[See article by O. L. Hershisser, on page 104, Feb. 15th issue, for a general discussion of this question.—ED.]

FOUL BROOD IN A BEE-TREE.

I cut a bee-tree this fall that was two miles from any bees in hives. It had foul brood. So you see bees can have foul brood in trees as well as in hives.

Shelton, Conn., Nov. 29.

EUGENE S. HUBBELL.

[This is the first report we have received of this character.—ED.]

OUR HOMES

By A. I. ROOT.

Of such is the kingdom of heaven.—MATT. 19:14.

Some years ago when *potatoes* (instead of "chickens") was my hobby I got a letter from a man in Northern Michigan who was not only a potato-grower but a great genius for *growing* almost every thing; and just then he was preparing to start melons in strawberry-boxes under glass, to be planted in the open ground later. I found out he was, by accident as it seemed, within about a mile of some land up there that I had owned for some years. Further correspondence resulted in a visit to the home of James Hilbert, of Bingham, Lelanau Co., Mich. I can't tell you now of the many things we had to look at and talk over; but along toward dinner-time Mrs. Hilbert said to one of the little girls, "Alice, could you dig some potatoes for dinner?" and as I took a look at the shy, slender little daughter of hardly a dozen years, I ventured:

"Alice, can't I go along and help?"

Her reply was hardly audible; but she gave me such a shy, sweet, childish smile I *knew* she was pleased, even if she did not say so. Then and there commenced one of the pleasantest friendships of my life. The potatoes were out near the barn where friend H. had been doing some "high-pressure" gardening, and I almost went wild with enthusiasm when Alice skillfully threw out twenty or more nice potatoes from a *single hill*. When her mother thought such a child could dig potatoes for dinner I was surprised, and it would have been a task on our average Ohio soil; but in that heavily manured, soft sandy soil, with a light shiny *potato-hook*, it was no task at all, even for a little girl. Alice was not only skillful, but she could tell *me* (who had published a *potato-book*) a lot about potato-growing in that region.

After Alice and I had become so well acquainted that she could talk to me freely, I found she had been reading my Home papers long before she ever saw me. There was a simple, honest frankness and innocence in her make-up that I think I had never seen before or since. Once on our way to Sunday-school she said, "Mr. Root, I loved you before I ever saw you." About that time, or later, she said also, "Mr. Root, I want to be a Christian, and I want you to be my teacher, and to show me how." Was not that a sacred and solemn responsibility placed on my weak shoulders? I told her I would gladly help all I could, and she used to tell me of her troubles in school, and ask me if she did right in her way of settling them, etc. Her father gave me an illustration of her loving and forgiving disposition. He said that, from a child up, when he felt obliged to punish her for some little thing she would come to him before the tears were dried on her little cheeks and say, "Papa, I love you." She evidently wished to have him understand that her faith and confidence in him were so

great she felt sure he would never correct her unless she deserved it, and that it was for her greatest good. Can we of mature age show this confidence and trust in our heavenly Father when we are chastised?

If I am correctly informed, Alice was baptized and taken into that Bingham church amid the hills, alone by herself; and *before* the revival I told you about some years ago. I think she told me also on one communion day that she, the mere child, was the only one in the whole audience who would partake. I presume the older Christians, from some mistaken notion, considered themselves "too unworthy."

Dear friends, my heart is full of sadness and sorrow to-day, for our yesterday's mail informed us that my gentle friend Alice is dead, and buried in that Bingham cemetery on the snow-capped hill near that little church. She wrote us last summer that the doctors told her she had an incurable disease, and that her stay in the world was not to be long. She said the Savior I taught her to trust in and love was ready to receive her, and she was ready to go, but that she disliked to leave her *two* motherless little girls. I wrote back to her to cheer up; that I would be up there soon, and may be we could persuade her to stay with her husband and the two little girls in spite of the prediction of the doctors. I wrote her something like this:

Dear Friend Alice:—You have paid me a great compliment by saying I have taught you how to *die*. Now, God grant it may yet be my privilege to teach you how to *live*.

I had in mind Terry's teachings, etc. Well, I fully expected to go up to that "old cabin in the woods" last fall, but I didn't get around to it. I fear that Simplicity incubator had something to do with it. May God forgive *me* for letting *anything* stand in the way of my duty toward my old friend Alice.

Kind, gentle, loving Alice is gone, and we can not call her back; but her brief bright life should teach us some lessons and point out some warnings.

Mr. Hilbert is a great worker, or was one. His children, like himself, have all been great workers. I have told you in years past how many potatoes they dug and picked up in a day. With his wonderful crops of strawberries, cherries, peaches, etc, his whole family *had* to work. I feel sure Alice worked too hard when she was young and growing rapidly. I often protested; but she was ambitious, and had the Hilbert enthusiasm. I am sure my good friends Mr. and Mrs. Hilbert will excuse me if I speak of another thing. It *used* to be quite the fashion then to have many parties that kept the young people out late. Before Alice came into the church she was out nights altogether too much for one of her age. Her father "scolded," but the young ones were headstrong.

Once when I was there he was up bright and early, and was going to hustle up all the youngsters. I plead for more time for them to get their sleep, reminding him they were

late getting home. He declared the best way to punish them for disobeying his positive command was to *make* them get up at the usual time. He may have been right; but let me beg of you, dear fathers and mothers, beware how you choose any method of discipline that breaks the needed rest of these young ones God has placed in your care.

Last, but not least, Alice, with her wonderfully loving disposition, was married and became a mother several years too soon. If I in my advice about marriage have induced any boy or girl to get married while in the "teens," I want to take it back. No man or woman should think of assuming the sacred and solemn obligations pertaining to married life until such person has arrived at *full maturity*.

Almost the last time I saw Alice she came over to our "cabin in the woods" when Mrs. Root and I were getting ready to leave for Ohio. I was burying some choice potatoes that I wanted to plant up there the next spring. Alice had grown taller, and thickened up, until she was quite a strong healthy-looking girl of perhaps 16 or 17. I pronounced my potato-pit ready for winter. She took exceptions to my work.

"Mr. Root, your potatoes will all freeze if you leave them that way. I am 'an old experienced hand' in such matters. Give me that spade."

I attempted to remonstrate, but she laughingly declared she would take the spade away from me unless I handed it over. I shall always remember with what grace and skill she made a neat-looking potato-pit. I remember wondering at the time if some young man had not already gotten his eye on her. She was then "fetching up," as it were, after the hard work of childhood, and was just about to "bud and blossom" into glorious womanhood; and it was just about this time, or a little later, that she married. Ask Terry; ask the doctors and our great humanitarians what *they* think about marriage at such an age. At barely 20, when she ought to have been a blessing to the world, she was laid under the wintry sod, leaving two little motherless girls.

May God in his great mercy help us to learn the lessons he is striving to teach in this present age of progress, especially the lessons in regard to these frail bodies he has given many of us to care for.

Gentlemen:—Enclosed find check for \$2.00. Please send two copies of "How to Keep Well and Live Long," by T. B. Terry, to the addresses inclosed. I have enjoyed reading mine so much that I want two more copies for these friends.

Stroudsburg, Pa., Feb. 2.

W. H. TRUSLOW.

The above is one of the characteristic letters we are getting regarding Terry's book. Our first supply of these was exhausted in less than two weeks from the time the first notice appeared. We were obliged to keep some of our friends waiting a few days before the second lot was ready, but we have now another good stock on hand. In all our experience we have seldom found a book selling at \$1.00 or more that has been so favorably received as has this book; and from no one have we had a single word of complaint regarding it.

POULTRY DEPARTMENT

By A. I. ROOT.

GETTING EGGS IN ZERO WEATHER BY MEANS OF A LAMPLESS BROODER.

On page 62, Jan. 15, I mentioned the Clough lampless brooder, and said it would house half a dozen pullets until old enough to lay, etc. Below is an account of a recent experiment by the inventor:

Mr A. I. Root:—It may be of great interest to you to know that we in the frozen North have been and are now having a most severe winter—snow or sleet most of the time; snow a foot or more deep; and with the rain, hail, and sleet it is more ice than snow. Railroads and street-cars are blocked half the time—coal very short. With me every thing is well. I am very busy, and at the same time I am making some experiments this cold weather that I could not make if we had a mild winter.

Perhaps you have noticed that I have said something about keeping laying hens for eggs in my brooder, and said that a hen-house was not needed, etc. Well, on the 15th of last November I went to my neighbor's and bought eleven Buff Orpington hens. They were one year old, and were laying from three to five eggs per day. I took them home and placed them in my scratching-shed; and before the snow they had the run of the lawns. They did not stop laying because of their new surroundings, but they were not all in perfect health. Some of them had a slight cold, or roup, as it might be called; but as I claim my brooders are a good remedy for many chicken diseases it did not frighten me. I placed a brooder in the shed for them to roost in; but as they did not know anything about "Clough's lampless" they commenced to *look up* for perches to roost on when night came. I expected this, and so was on hand and gently guided them into the brooder. It was a hot time for them, for it was warm weather, and so I let them nestle around outside the brooder, with two or three inside of it. This went along all right until Dec. 8, when the thermometer registered zero, and then the hens did not need any urging to enter the brooder, and they did not come out to cool off either. Some of them would stick their heads out for a few minutes, and then move back and let some others come near the door. Well, they produced the eggs just the same. That day they laid eight eggs. Since that time it has been 23 times from zero to 20 below, and these chickens (or hens, rather) have laid every day from two to seven eggs to date. They have become entirely well, and are in better condition every way than when I bought them. I have made inquiries all over this city, and outside to neighboring cities, asking the question, "Do you get any eggs this cold weather?" The answer has been, "No eggs."

I will now tell you how I fed them after the snow came, and they did not get out. Their first feed is hash in the morning, any time from eight o'clock till ten, just as I happen to feel about getting out this cold weather. This hash is made of the scraps from our table of four people, and sometimes it is not very abundant, because we eat up close. It consists of every bone and gristle from the meats; potato, onion, squash, and apple parings, not cooked, but all thrown into a pan together. To chop this into hash I made a special chopper with a hopper about one foot high and six inches in diameter. This hopper is on a solid block of wood. With a heavy chisel having a long handle to it I churn up and down in the hopper for only a few minutes, and every thing, bones and all, is made into the nicest chicken hash possible, and there is not a machine made that will work like this knife. Sometimes the hash will have too much water in it, and be too "mushy" for chicks. In that case I dump in a cup of bran and oats until it takes up the surplus water. For the last month I have put in a pint of alfalfa meal scalded, and this makes their droppings look as they do in the summer when they are getting what grass they want.

This hash is fed in round feed-pans set on legs about ten inches high; and it is a pleasant sight to look at them as they stand around that feed-pan. There is no mussing, and, by the way, this feed-pan, is the only

good way to feed chickens. The pan is made by using a ten-cent basin. Take four pieces of narrow board and punch a hole through the edge of the pan and drive a nail in, letting the legs flare out a little; then put a cross-piece from one leg to the other, and you will have a feed-pan that the chickens will not tip over nor muss in, and they can scratch all around and under it, and it really takes up no room. Well, hash is the morning meal. After this is all eaten, a pint of bran, oats, and wheat mixed is placed in this pan for them to eat at any time. When this is gone another is given, but not over two a day, making one quart. Along in the afternoon I give them two ears of corn scattered in the straw. I wish to say that I have beef-scraps on hand all the time, so when there is not much meat or bone in the table-scraps I put about a gill of beef-scraps into the hash-hopper. The water is heated in a coffee-pot and taken to them once or twice a day. Cold days it is boiling hot when taken out, and it will be three hours before it begins to freeze. The hens will not drink it until it gets to the right temperature, of course. They seem to use judgment in regard to this. When this water becomes cold, and ice is in it, another pot of hot water is poured in, when the ice soon disappears. At night the water-dish is emptied. This water-dish is made like the feed-dish, with the exception that four light pieces of wood are run up to a peak above the water so that the fowls can not hop up on the edge of this pan and get wet.

Now figure what it costs to feed these hens. I figure that the eggs they have laid cost less than one cent apiece, or that I am keeping these fowls at a cost of three cents a day, paying market price for every thing they eat except the table-scraps and the little time taken to care for them. You will notice that I have no feed-hoppers, so that the fowls can eat all the time. I do not think it the right way to feed. These eleven hens have laid eggs continually, I was told, since ten months ago, not stopping during the moulting season. The lady of whom I bought them told me she fed them about as I have, although she did not have the conveniences I have in the shape of tools, brooder, etc. She said they did not lay last winter, as they were then too young.

Now, Mr. Root, this way of feeding is a practical one, and is not forced. It is not a two-hundred-egg yield per hen, but it is a winter yield when no hens to speak of are laying. The number is 238 eggs from Nov. 15 to date—53 days, or a little better than four eggs a day.

Aurora, Ill., Jan. 13.

V. W. CLOUGH.

I believe it is pretty generally agreed that artificial heat for laying hens is not a success; but economizing the heat of the fowls, as above, is all right. It amounts to the same as giving horses and cattle good warm stables; and these fowls, it will be understood, can at any time put their heads out at the door and get cool fresh air. Perhaps I should explain that this brooder that accommodated the eleven laying hens is 2½ feet square, and perhaps a foot high inside, with "woolens" overhead to keep them warm.

The whole experiment as given above is really in line with the Philo system of keeping fowls *successfully* in a small space.

SPROUTED OATS OVER A FOOT LONG FOR CHICKENS.

Somewhere I think Edgar Briggs has said that chickens will eat oats when the oats have grown six inches high; but I could never get ours to swallow them when a good deal smaller, and I was uncharitable enough to think the statement an exaggeration; but, listen. Just before my brood of 70 (the ones the possums got into) were hatched, I cleared up a strip of woodland near their brooder, about 10×40 feet, and sowed it to oats so as to have them ready when the chicks were old enough to take them; and after the demise of the chicks the oats were left growing. As it was new land where one seldom gets much if any thing the first year, we cleaned out a

poultry house and worked in the whole contents on this strip. On this light sandy soil we have only to work under the roosts with hoe and rake every morning to have a nice sweet-smelling poultry-house all the time.

I think this house (of, say, 25 fowls) had been treated this way for six or eight weeks, when two wheelbarrow loads were put on that 10×40 strip. Well, for a week or two past, people have been stopping to inquire what grain or grass it was that gave such a beautiful rich dark green. I supposed it was altogether too tall to feed chickens, and was figuring on what I should do with it. Wesley gave some to the laying hens; but he said they didn't seem to want it. Finally I pulled up some from some very rich spots, and, shaking all the dirt off, carried it out to the "biddies." Now, these particular biddies have a sort of notion that I usually have some choice tidbit for them, and so they came up and began to examine and sample the luxuriant oats. I first pulled the rank stalks to pieces so they could swallow them, and by a little training I taught them the trick of swallowing oats not only a foot tall, but some actually 15 inches from tip of blade to the root. It is really comical to see them commence at the tallest blade or leaf and gobble it down until they come to the great bushy root, and then, after swallowing that too, and smacking their lips (or bills) to express the satisfaction it gives, they go for another. Since the fowls in that particular flock have learned the trick they will "get away with" a bucketful in a very short time; and my biggest egg-yield of the season followed right after this heavy feeding with green oats. Don't you see I have not only made *another* wonderful discovery, but I have made two of them? First, keep your chicken-coop clean and sweet all the time; and, secondly, use it as I have described in providing the most wholesome food for your fowls at even less than "15 cts. a bushel."

THE "BUTTERCUPS" UP TO DATE, FEB. 10.

The pullets are small, but quite handsome, though not laying yet. The cockerels, however, have manifested such evidences of precocity that I have placed three Leghorn hens in the Buttercup pen; and if we can't have full-blood Buttercups just yet we can have a few half-breeds just for the fun of it. I think the Buttercups are now about 4½ months old.

SOME OF OUR POULTRY LITERATURE FOR 1910.

In my hands is a book for which I have just paid \$1.00, entitled "The Kellerstrass Way of Raising Poultry." Just below the title on the cover we read:

You can read this book in 35 minutes; but it took me thirty-six years to write it. ERNEST KELLERSTRASS.

I suppose most of you know that Kellerstrass is the man who owns the \$10,000 pullet, and the poultry-journals are now telling us that he has sold during the past season 1024 eggs for \$2048—that is \$2.00 for each egg, or \$30.00 for a setting of 15 eggs. These eggs didn't come from "Peggy" either, but

from 30 of his best breeders, selected from a flock of 5000 or 6000. The book is a valuable one, even if it does contain less than 100 pages, and about 40 of these pages are taken up with testimonials from his customers who paid \$2.00 each for 15 eggs. The book is a big improvement in paper and print over the other dollar books that exploit "systems;" but why didn't Mr. K., with that big lot of money, put a cloth cover on his book and make it a little larger? In many respects the "book" is only an advertising medium for his \$2.00 eggs, such as our incubator people send out free of charge; and, to cap the climax, one of the pages in the back part is all taken up with the announcement that if you want his catalog of prices with *pictures* of the things described in the book (for which you have already paid a dollar), you must send *four cents* to pay the postage on the catalog. Evidently Mr. K. and some others (Burbank, for instance) do not expect to do much for the "dear people" unless they pay for it in good round dollars.

Now, I am glad to say Mr. Kellerstrass seems to have developed a wonderful strain of egg-laying White Orpingtons. The editor of *Reliable Poultry Journal* wrote to 84 people who purchased the \$2.00 eggs, and *seventy-two* replied. Mr. K. seems to have a fashion of making his customers satisfied (and well he can afford to), and a lot report getting 200 or more eggs in a year from pullets from the \$2.00 eggs; and I notice one report of 265 eggs in a year. The \$2.00 eggs are from 30 breeders selected from five or six thousand by careful trap nesting.

I want to call attention again this year to the Cyphers catalog. It contains a "secret" of more value, in my opinion, than any I have found in the "System" books—viz., a plan by which you can raise the very *best* chickens, and neither feed them nor clean out the litter oftener than *once in two weeks*. Our friends will remember I copied the process from their catalog about a year ago, and since then they have proved again the superiority of the method (deep-litter feeding), not only for young chickens but for *laying pullets*.

HEALTH NOTES

MILK "STRIPPINGS" FOR CONSUMPTIVES.

Toward forty years ago, when I was taking the "beef diet" with Dr. Salisbury, he had a patient threatened with consumption, and by his orders this patient took about a pint of milk strippings right from the cow, night and morning. This patient is still alive and enjoying fair health, so far as I know, and the whole matter was brought to mind by the following clipping sent out by Dr. Kendall, who is prominently connected with the Christian Home Orphanage, Council Bluffs, Iowa. Milk is surely better than medicine for almost everybody.

The most certain method ever adopted for the cure of the "great white plague" is through the diet used as per directions below, which can be taken at home,

and comes within the reach of the poor as well as the rich. The *modus operandi* is to force the body to take on fat—a desideratum long felt by the medical profession, but never before attained to.

During the last fifteen years I have prescribed this diet in hundreds of instances; and where directions have been followed strictly it has raised the weight and increased the strength and vitality of the patient rapidly up to a normal condition, thus enabling nature to assert her sovereign right to be the dominating force in the body, and the germs causing consumption have been overcome and the cure accomplished. Some have gained a pound a day, and would gradually take on less until they would not increase in weight any more.

The all-important thing is to drink large quantities of milk strippings (the very last of the milking). This seems so simple and easy that many have refused to follow directions, and demanded medicines to cure them; but there has not yet been discovered any medicine that is a specific for consumption.

To get best results a healthy cow should be selected, one that does not cough, and one that gives very rich milk. A Jersey cow is preferable. The milk should always be tested to be sure that there is a large per cent of cream in it.

The last quart should be milked into a separate dish which rests in a larger vessel containing warm water, just sufficient to prevent the strippings from cooling below blood heat. The cow should be thoroughly cleaned to prevent any dirt getting into the milk, so the patient can blow back the froth and drink at once without straining, as this cools it too much.

Begin by drinking nearly a pint in the morning and the same at night, and increase the quantity gradually so that in ten or fifteen days a full quart will be taken twice a day. It should be taken immediately after milking, before it has had time to cool any. All should be taken that can be without too much discomfort, and then rest two or three minutes, and drink more and rest again, and so on until a full quart has been taken as soon as it can be conveniently. In about fifteen minutes the patient should eat at the table such articles of food as are known to agree with the stomach. At noon eat as usual.

When the strippings are not allowed to cool below blood heat, and taken immediately after it is milked, a full quart will be transfused into the circulation in a remarkably short time.

I have never seen a case but could take the strippings without any discomfort worth mentioning when above directions were followed strictly, although some have declared they could not before trying it; but when they delayed taking for half an hour and the milk had cooled ten degrees I have seen half a pint make them very sick. The great secret of success with it is in taking it immediately after milking and not allowing it to cool below blood heat, taking a full quart morning and evening, and having milk that is very rich.

The following is a typical case. Mrs. A. E. was suddenly startled to find her weight was forty pounds below normal. She was coughing terribly, and soon had a very profuse hemorrhage from the lungs that came near taking her life. I at once began the use of the milk strippings after hemorrhage was stopped, and in about ten or fifteen days she had gained nearly a pound a day, and was soon able to get out of bed and go around the house. She increased quite rapidly; and as her weight and strength increased her cough decreased. When she had gained thirty pounds in about three months her cough had left her. I had her continue the same diet for six or eight weeks longer, and she gained ten pounds more, and then took on no more flesh. She was then as well as she ever had been, and continued well after the strippings were discontinued.

She took no medicine after the hemorrhage was stopped, excepting a little pepsin and some other remedies to aid digestion, and a simple cough remedy to ease the cough; but tar, lobelia, opium, tartar emetic, and such medicines as disturb the stomach and interfere with digestion were carefully avoided.

It is easy for those on a farm to carry out this method; and on several occasions parties who lived in the city purchased a suitable cow, and, after complete recovery in every instance, they sold the cow for nearly as much as was paid for her.

I do not remember any patient who followed the directions strictly who was not cured; but several persisted in declaring they could not take it, until so much valuable time was wasted that they lost their lives.

I have found the same diet, when these directions were carried out carefully, to increase the weight and strength of those run down from other causes.